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The Magazine for Information Executives

STAYING POWER

After 9/11, Wall Street CIOs had to make business continuity plans. Now they have to live them. Their stories begin on Page 56.

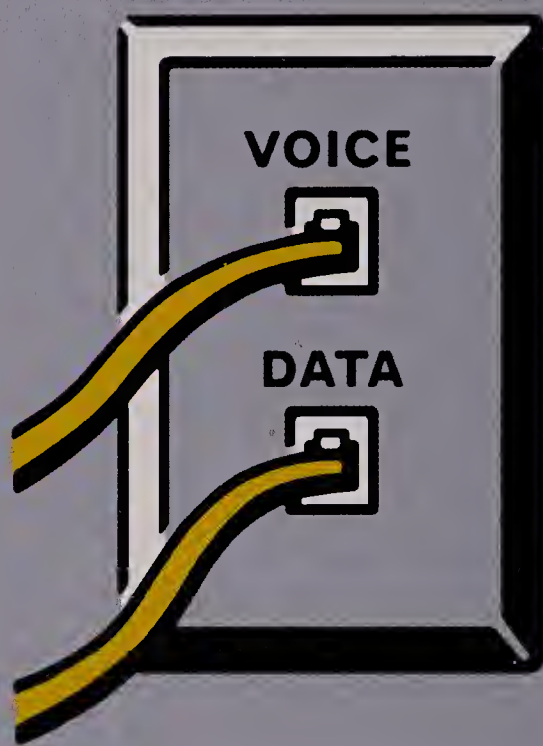
ALSO IN THIS ISSUE

What Web Services Can Do, What It Can't—A Reality Check

Page 72

American Express CIO Glen Salow, standing at Federal Hall near the New York Stock Exchange, plans for emergencies that stretch beyond his Manhattan headquarters.



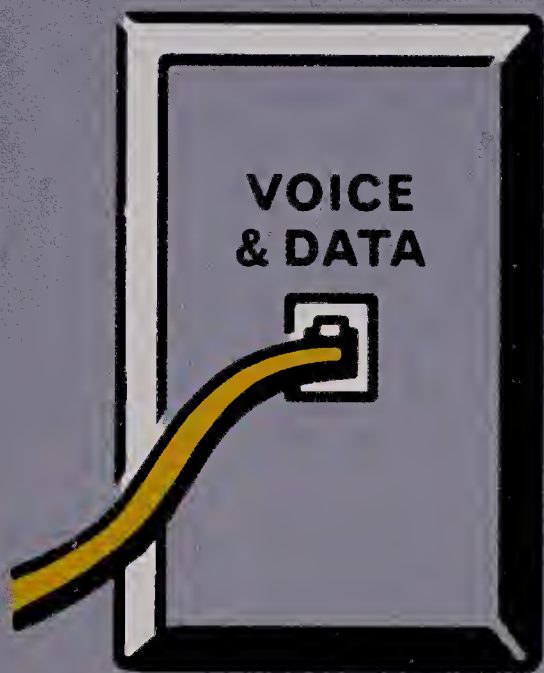


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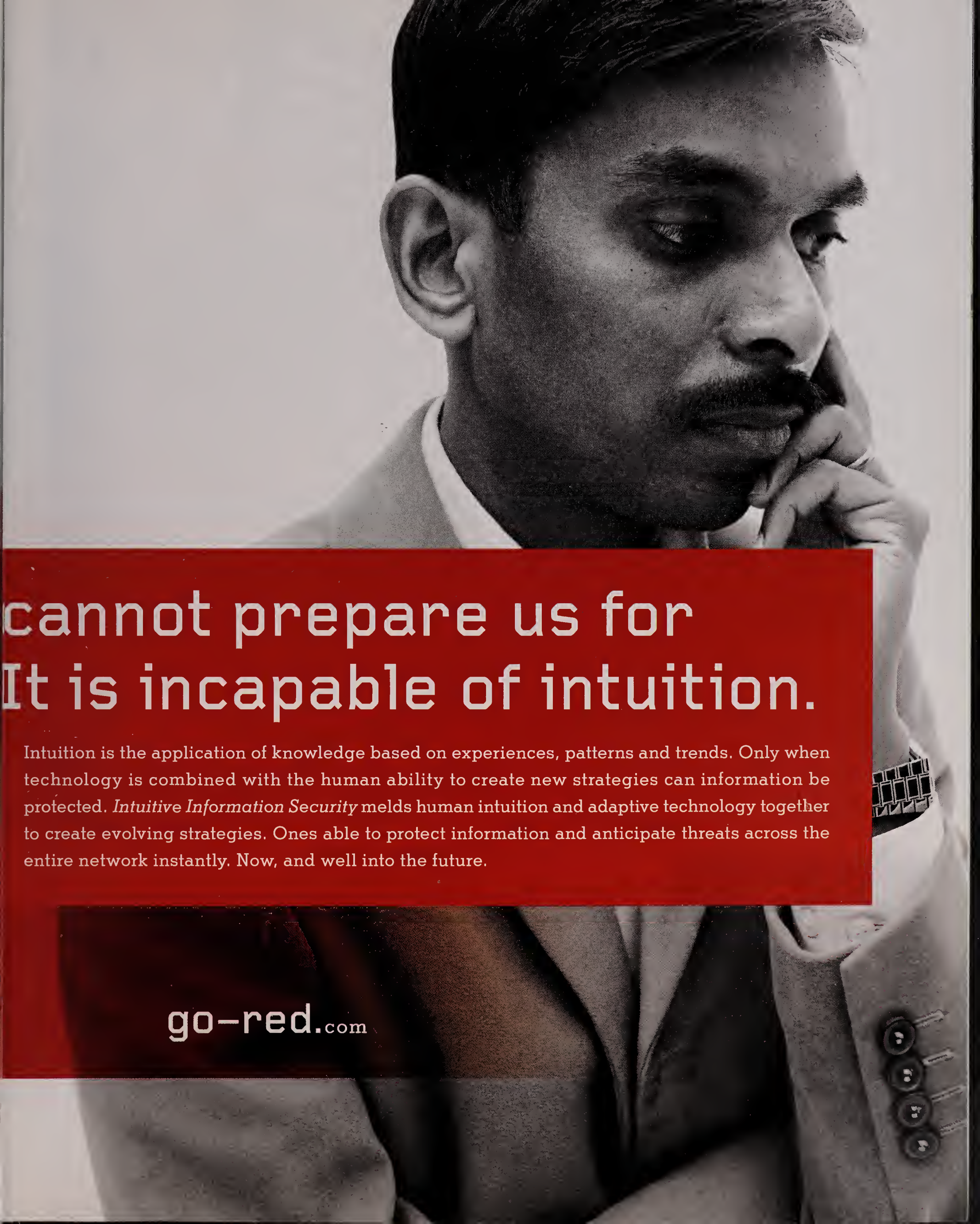
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VOL. 15 • NO. 22 • SEPTEMBER 1, 2002

Cover Story

DISASTER RECOVERY | 56

STAYING POWER

In the weeks and months after 9/11, three CIOs working next door to the World Trade Center found they had to be strong leaders to get their companies back online. Now back in the city, they don't make business continuity plans. They live them.

By Sarah D. Scalet



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"You have to assume a disaster is more likely to happen now," says American Express CIO Glen Salow. See how he's preparing.

COVER PHOTO BY ANDREW KIST; PHOTO USED WITH PERMISSION OF THE NEW YORK STOCK EXCHANGE

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BUDGETING

Buyer's Market | 66

As vendors offer deals and your competition sleeps, now may be the best time to boost technology spending.

By Todd Datz



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Rory MacDowell, CIO of Flowserve, says vendors are more willing to deal: "They're looking for new and creative ways to get a bigger piece of the IT wallet."

SOFTWARE

Web Services: Still Not Ready for Prime Time | 72

The Next Hyped Thing is starting to show its age. Time for a reality check of what Web services can and cannot do.

By Ben Worthen

GLOBAL TRADE

Model Shipping | 78

Businesses have been leaving money lying on the international trade table simply because it's been too hard to pick up. But now a new breed of IT systems is helping those companies cash in.

By Malcolm Wheatley

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Underwriting Knowledge | 85

When insurance giant CNA had to consolidate and share what its employees knew, it turned to the Net—and knowledge networks.

By Megan Santosus

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My idea of hell is being trapped on a boat full of vendors with no chance of escape. So how come I loved this trip so much?

By Jerry Gregoire

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Valuable lessons in IT thought leadership—for the CIO *and* the CEO.

By Jack Brennan

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Mark Polansky offers advice to CIOs and aspiring IT managers.

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CIOs on the go—see where your IT peers are working now.

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MAKING I.T. WORK | 50

By Michael Schrage

Beyond Ideas

IT innovation is meaningless without ongoing implementation. And implementations need to be as creative and inspiring as the ideas that supposedly drive them.

In **Michael Schrage's** new column, the codirector of the MIT Media Lab's eMarkets Initiative takes on IT implementations.



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Performance management tools help systems run at peak efficiency.

By John Edwards

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Fran Dramis helps BellSouth evolve into an information services company through leveraging IT. *By Alice Dragoon*

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How to mentor: the development statement.

LEADERSHIP AGENDA | 110

Lead your staff by aligning values and actions. *By Susan H. Cramm*

In Every Issue

FROM THE EDITOR One Year Later | 18

A difficult year has passed, and the experiences of New York City CIOs teaches us all about recovery and perseverance.

By Michael Goldberg

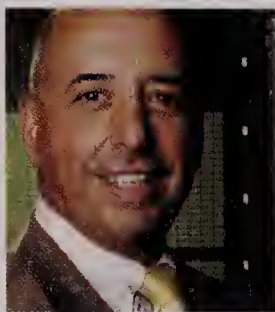
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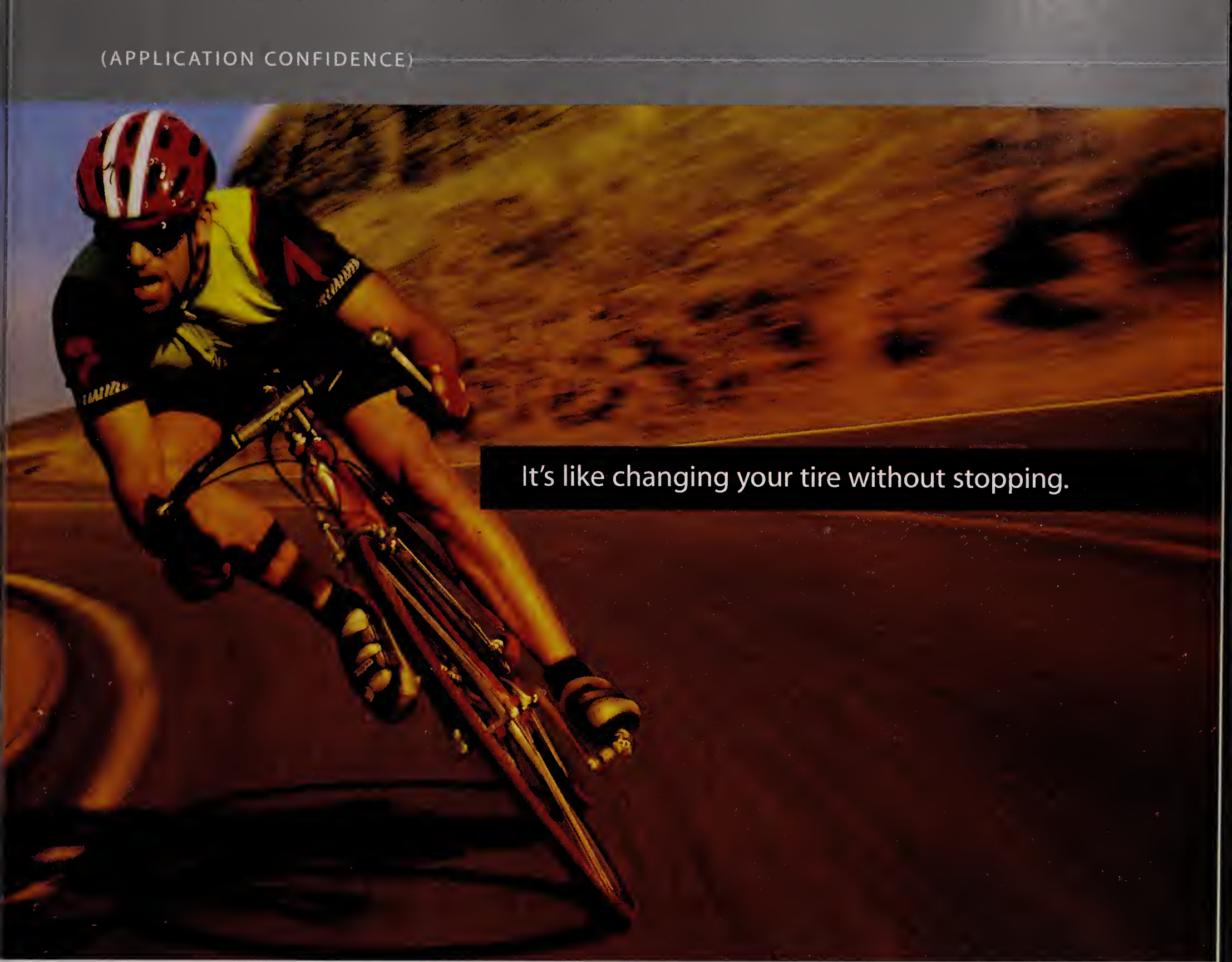
Abstracts of all the feature stories found in this issue.



"You need the ability to articulate to people the need for change and link into something inside the individual which has meaning to them. Even good change is difficult."

—Fran Dramis, EVP at BellSouth, on managing technology transformations Page 105

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WEB >connections

Interactive features from September 1 through September 14

TALK BACK

Did Sept. 11 really change your business?

Everyone said Sept. 11 changed everything, but a lot of it was just talk—at least outside of companies directly impacted (see **Staying Power**, Page 56). In light of the subsequent budget realities, what things did you want to change and what did you actually change? And what stayed the same? Post your comments.

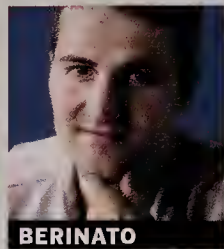
Find links to the stories mentioned here in the **WEB CONNECTIONS** box at www.cio.com.



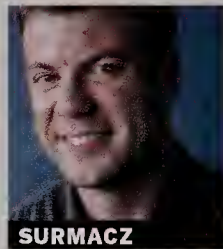
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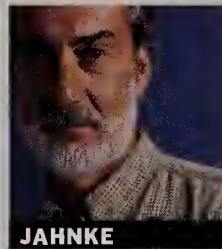
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Our Daily Web

MONDAY Tech Tact Technology Editor Christopher Lindquist on what's next.

TUESDAY Alarmed Security experts Sarah D. Scalet and Scott Berinato give you something new to worry about.

WEDNESDAY Metrics Web Writer Jon Surmacz makes sense of the numbers.

THURSDAY Sound Off Web Editorial Director Art Jahnke opines on ethical dilemmas.

FRIDAY The Big Picture Charts and graphs worth a thousand words.

The Department of Making Things Easier

Fired up on knowledge management after reading **Case Files: Underwriting Knowledge** (Page 85)? Maybe you should attend "Benchmarking Your Knowledge Management Intranet," which will be held in Stockholm, Sweden, on Sept. 19—or one of more than 75 other KM events listed in our **Events Calendar**. To find the one that's right for you, go to www2.cio.com/events.



READ MORE

China's Rules

It pays to know IT in today's global marketplace (see **Model Shipping**, Page 78). When it comes to doing business in China, it pays to know the local rules. Read **The China Syndrome** for the inside scoop.

LEARN MORE

CIO Spending Survey

How much are your peers spending and on what (see **Buyer's Market**, Page 66)? Check out the full results of the latest CIO survey, "**IT Planning for the Economic Recovery**."

The Darwinmag.com Connection

Darwinmag.com, CIO's online sister publication, explains technology to the nontechnology executive. E-mail these articles to your peers, or brush up on the basics yourself.

Darwinmag's **The Essential Guide to Web Services** covers the groundwork. CIO's **Web Services: Still Not Ready for Prime Time** (Page 72) covers the rest.

CIO says it's a **Buyer's Market**. Darwinmag tells how to **Make the Case for Tech Spending**.

To find these features, go to www.darwinmag.com.

Web Services: Explained!

The online version of **Web Services: Still Not Ready for Prime Time** features a downloadable, Flash presentation of how Web services work.

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From the Editor



Did Sept. 11 really change your business? Go online to Talk Back. Find the link in the Web Connections box at www.cio.com or go to comment.cio.com/talkback.

One Year Later

EVERY ENGINEER WANTS his machine, his system, to be robust—to take a licking and, as they say, keep on ticking. But bench testing is one thing; real-world experience is another. A year ago, on Sept. 11, the very robustness of America was tested. And, with great difficulty, much pain and grief, it passed.

Nowhere is the truth of this proposition illustrated more clearly than in New York's financial district. As you will read in "Staying Power" (Page 56) by Senior Writer Sarah D. Scalet, it was CIOs like Glen Salow of American Express, John McKinley of Merrill Lynch and Jonathan Beyman of Lehman Brothers who led their organizations back to recovery after last Sept. 11.

There are a couple of things that come through here. First, the immediate actions of these CIOs and their staff were vital to getting this center of the business world back online. In fact, they accomplished in just days what many thought would take months—if it were to happen at all. Systems went up on the fly, and people worked long hours in converted Manhattan hotel suites, in satellite New Jersey and Connecticut offices, and from homes around the region. Suddenly—or so it seemed—there were new trading floors, new communica-

tions capabilities. At Merrill Lynch, wireless technologies meant restored communications within one day.

That meant a great deal to these individual businesses, but more important, it told the country that although we had been bloodied, we were unbowed.

The second point is that the attacks and their aftermath continue to reverberate. The experiences of 9/11 encouraged our CIOs to reinterpret the meaning of operational phrases like "disaster recovery" and "business continuity." Revisions and reevaluations to such plans are the routine now, in New York and around the world.

For Beyman, that process took his company to a new building, and a new data center in midtown Manhattan, a couple miles north of Wall Street.

"Who knows what we'll do three years from now, but for right now we have hot standby for our traders," a complete set of backup facilities in New Jersey—just in case, Beyman told *CIO*. "We never would have gone down that path before, but now we go down that path."

What paths have you altered in the past year? What points do you take most seriously from the experiences of your peers in New York?

Let me know what you think.

Michael Goldberg

Executive Editor
mgoldberg@cio.com

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InBox

Reader Feedback

SOLD ON CIO OBSERVER

Fascinating article ["The Hardest Job in IT," CIO Observer, May 1, 2002]! I have spent my whole career in sales, marketing, product management, service management, marketing and sales management, and exec management. I've been the CEO of a client company that needed help getting out of Chapter 11.

At age 63, I know something of the foibles of salespeople. Tricks to get to the CIO abound. Most CIOs are like the Roman general in the battlefield. His men have spears; the salesman is trying to sell him a machine gun—but he doesn't have time to talk about that now. CIOs are running for their lives—all the time. The average life of a CIO is something like two years. (I'm sure you know better than me.) So, a salesperson must develop methods to get past admins, voice mail and so on. Personally, I make no apologies for trying to get through. In fact, the salespeople in any company have some similar barriers to breach. If a sale isn't made, it affects everyone down to the janitor.

Second, don't think that salespeople have a fence around failure to understand the value of their products. Let me guarantee you that a whole big bunch of people on the other side of the table from me have refused to see value when properly presented. A lot of these folks work for CIOs. Legacy systems—how about legacy employees? They've been there forever, they'll outlast the latest incarnation in the form of a CIO, and they ain't gonna change.

Tom Harding
Principal
CEO Action Group
Waverly, Pa.
tharcons@aol.com

The last question you asked of Paul DiModica [author of the book *How to Sell Technology*] was, "So why would anyone want to be a salesman?" The answer has not changed, in my opinion, for 100 years: independence, unlimited income potential, the chance to win and the chance to perform. People who have the ability to influence other people are invaluable. If you find someone who has that ability, and he

has a moral compass (these people certainly do exist), he is worth his weight in gold.

Salespeople who are successful long term add value to their customer's enterprise.

Tim Hanson
President
Teleplus Consulting
Minneapolis
thanson@teleplusconsulting.com

As a technical sales professional, one of the most challenging aspects is that organizations sometimes have a clear difficulty in communicating their real goals. My company prides itself on training the sales staff to really listen. Unfortunately, sometimes the message we hear is jumbled. There seems to be a real disconnect between the board, CIO, director and frontline technology user. What do you believe sales professionals can do to help CIOs bridge this gap?

Chris Risenhoover
Regional Account Manager
Tripwire
Dallas
chrisr@tripwire.com



THANKS FOR THE INSIGHT

I have recently been appointed CIO for a major financial services corporation. I just wanted to let you know that the information contained in your magazine has been instrumental in helping me evolve into the position. Obviously, there is no handbook on how to run a technology organization, especially when considering the current economic conditions; however, many of the articles that I have read in CIO have provided some very important insight.

I just wanted to say thank you and keep up the good work.

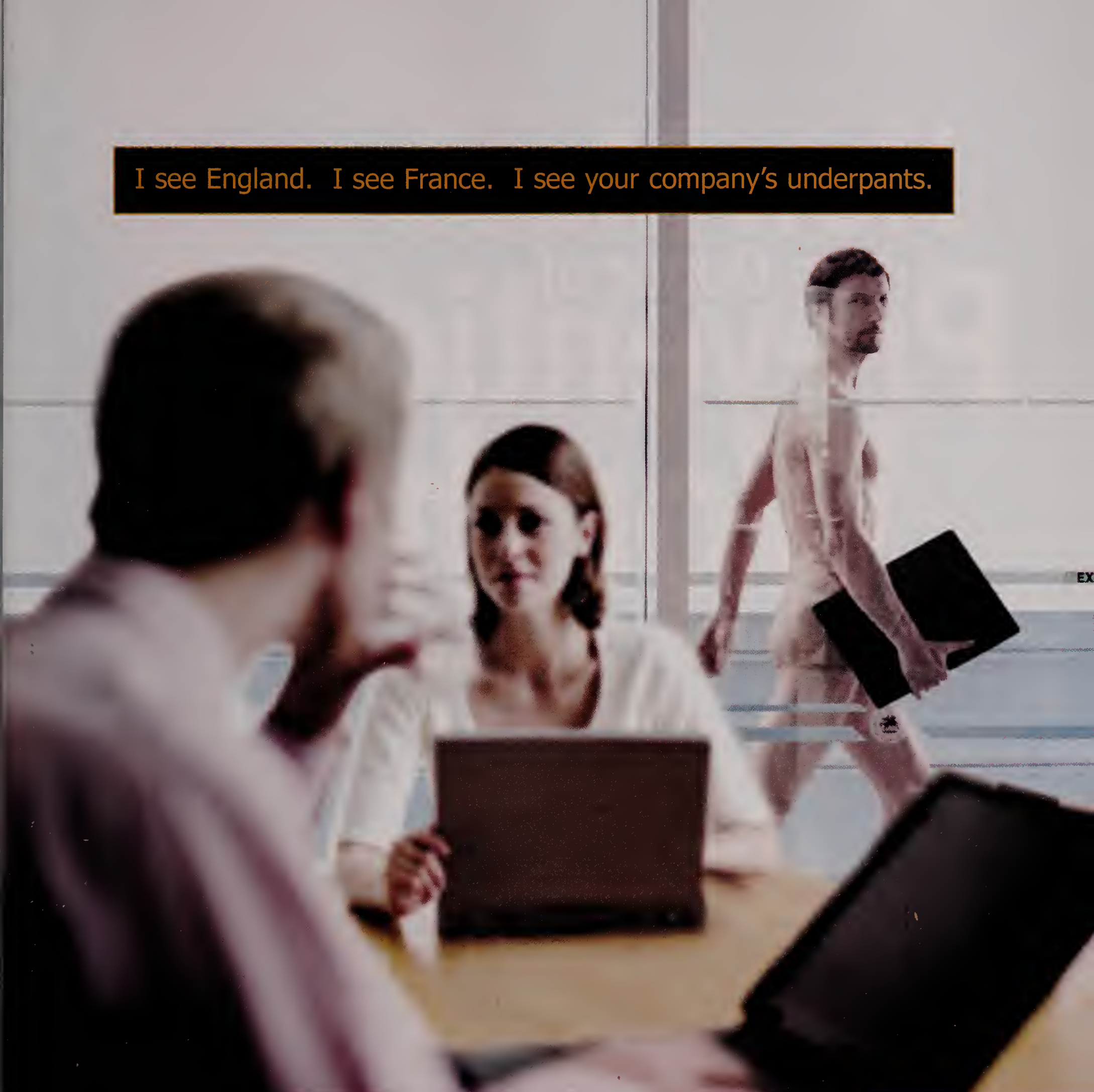
P.S. It might be interesting to publish an article on CIOs new to the position.

Marc Librizzi
CIO
Mellon Investor Services
Ridgefield Park, N.J.

OUTSOURCE WITH CAUTION

I found your June 15 article ["You Can't Outsource City Hall"] very interesting.

As a local government CIO, I am watching the San Diego County project with great interest. You made many good points, but there are a couple of



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others that you may want to consider.

In my mind, the primary difference between the public and private sectors that impedes large-scale outsourcing initiatives is that authority and control in the public sector tends to be much more diffuse than on the private side. For example, county governments often include "constitutional officers" who are directly elected and not responsible (or sometimes responsive) to supervisors or administrative management. Local governments make wide use of boards and commissions, which may actually hire department heads who are ostensibly part of the government's management team. I think the government governance model itself is more of an inhibitor than union opposition.

Outsourcing does not fix bad processes. Many government organizations have ill-defined, traditional processes

WHAT DO YOU THINK?

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that will remain even after the staff who know and understand those processes have departed. I don't think outsourcing can be successful unless an organization's business processes are well under control. It's simply asking too much of the private side to learn about and accommodate these processes quickly.

There are some models that have had some success. Indianapolis/Marion County has outsourced nearly all of its IT services for some time. A couple of regional nonprofit service providers have been effective. The San Diego Data Processing Corp. serves many communities

in the San Diego area and even extends its business into Mexico. Hennepin County of Minnesota, is another excellent example of a regional operation that works well.

Finally, the issues of scale and scope are paramount. Even a small city like Des Moines has 15 distinct business units, each with varying requirements.

We recently agreed to pilot a seat management contract for Public Technology. During our work on this project, which will be relatively small in scale, the complexity added by government's use of highly vertical applications for government-specific functions was a major problem in developing a model for this project.

Michael Armstrong

CIO

City of Des Moines, Iowa

mrarmstrong@dmgov.org

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Ask the Expert by Unisys

The voice of online financial services in the business and trade press, Ian Rubin, Director of Online Financial Services Research at IDC, provides executives of leading global financial institutions with timely advice on key online opportunities and industry trends.

> *Living in the online world as you do, can you assess the importance of face-to-face (f2f) contact between financial institutions and their customers?*

> Face-to-face contact is not only important, it's critical. As electronic delivery channels continue to evolve and become more sophisticated, a growing number of "low value" transactions will migrate from "attended" channels to "unattended" channels. What won't migrate, however, are the more sophisticated interactions involving higher margin products—investments, insurance, mortgages. Most consumers require in-person contact with bank staff to understand the variety of product choices available.

> *Does IDC have data to support this view?*

> For 2002, IDC forecasts that more than 12.7 billion branch transactions will be conducted in the United States—more transactions than for any other banking channel. And while we also expect high growth for other channels, such as call centers, we don't see a reduction in branch volumes. In fact, we forecast a continued growth in branch transactions until at least 2006. Some of this growth will come from an increase in more sophisticated interactions between banks and their customers.

> *With apologies to Mark Twain, reports of the death of bank branches have been greatly exaggerated, wouldn't you say?*

Bankers, and some analysts, have been predicting the demise of the branch for 30 years, ever since the introduction of ATMs in the late '60s and early '70s. Just the opposite is true! According to the FDIC, while the number of banks has dropped steadily over the last 20 years, the number of branches has grown

significantly. What does this imply? It means customers still find branches to be an indispensable element of their financial relationships. In fact, we believe that proximity to a branch remains the single most important factor when a customer is considering a new bank relationship.

> *What about the role of f2f contact in the multichannel environment?*

> Its role will remain crucial as institutions adopt multichannel delivery strategies. Multichannel environments will enable more effective f2f contact in a variety of areas, such as financial planning for the mass affluent [customers with significant assets, but who are not at the level required for private banking]. To establish and refine that planning, the branch officer and customer can leverage several channels, such as the

phone and the Internet. But what turns that plan into increased sales for the bank remains the personal relationship between officer and client, and that relationship requires f2f interaction.

> *What is the relationship between CRM and successful f2f contact?*

> IDC believes that f2f contact is the foundation of a successful multichannel strategy, and that customer relationship management (CRM) is the foundation for meaningful f2f interactions. A winning multichannel approach must provide benefits to the institution, in terms of managing IT maintenance development costs, as well as to the institution's clients, in terms of accuracy of account information, consistently good customer service, and the opportunity for the bank to identify customer needs. None of these customer-facing benefits can exist without CRM as an integral element.

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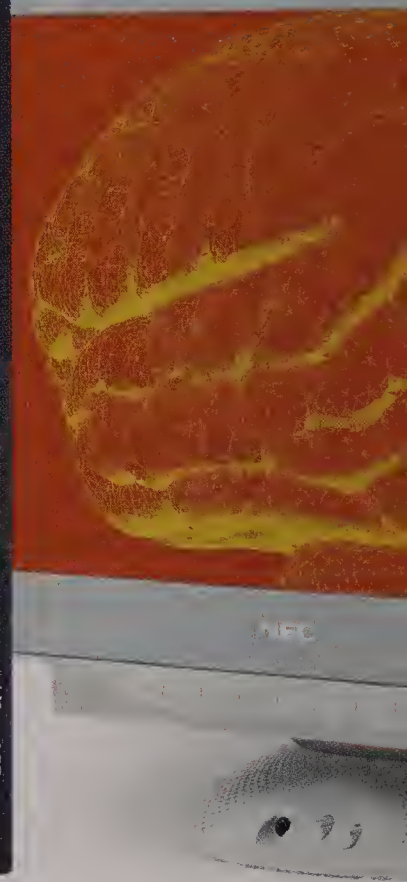
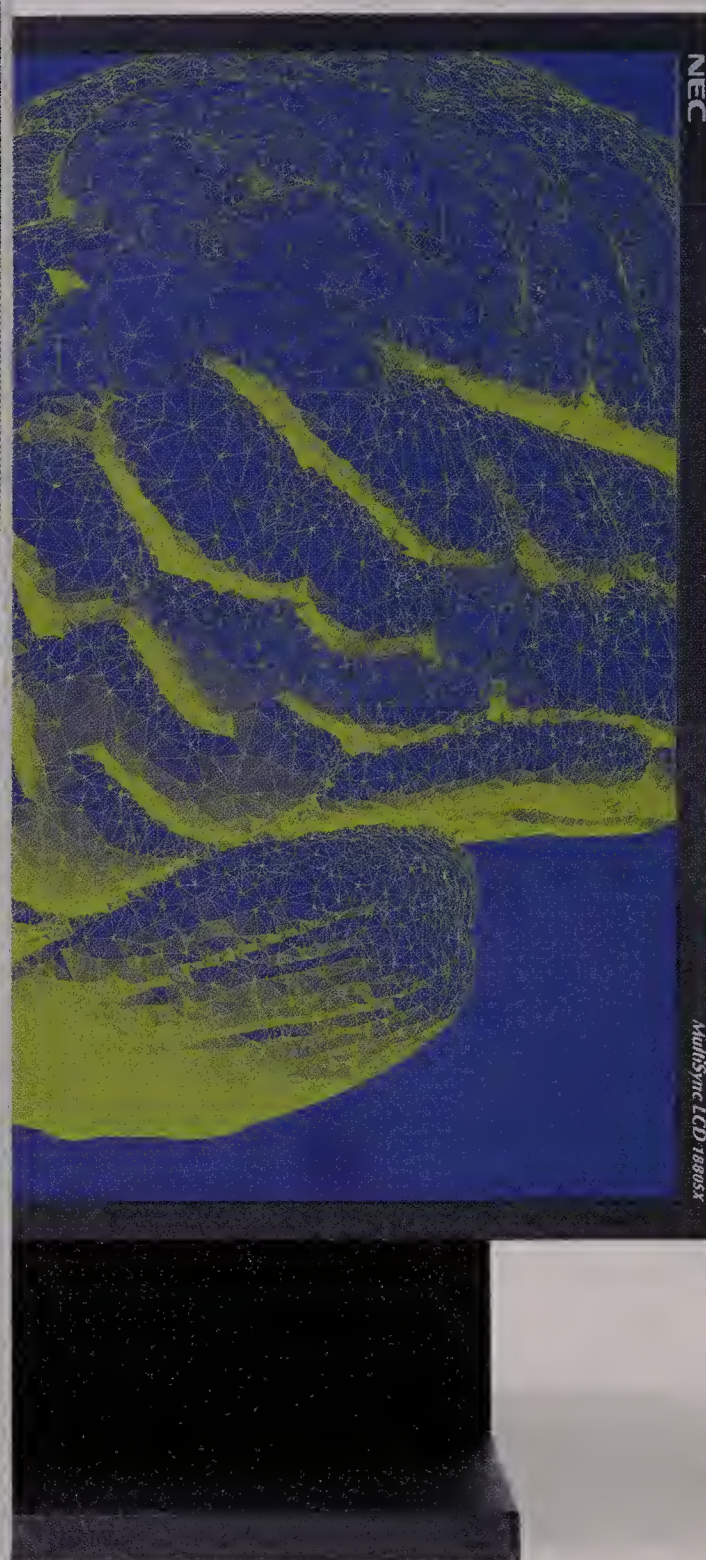
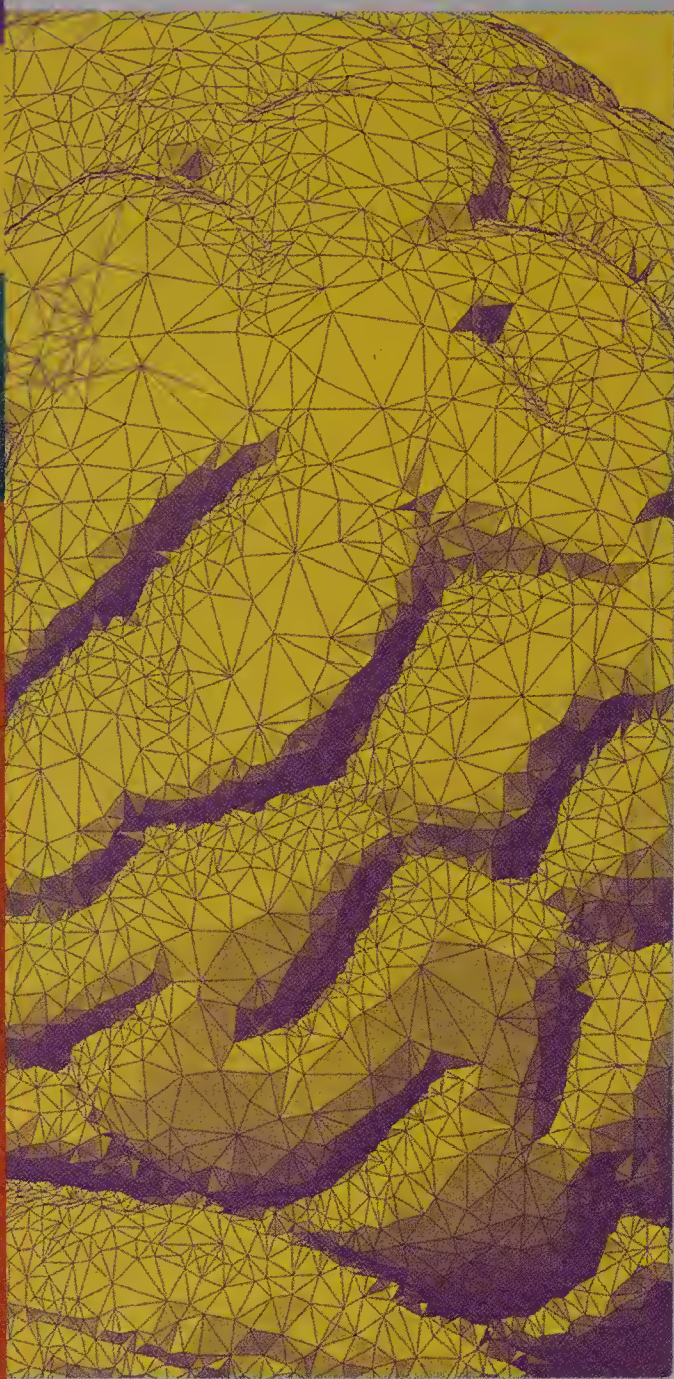
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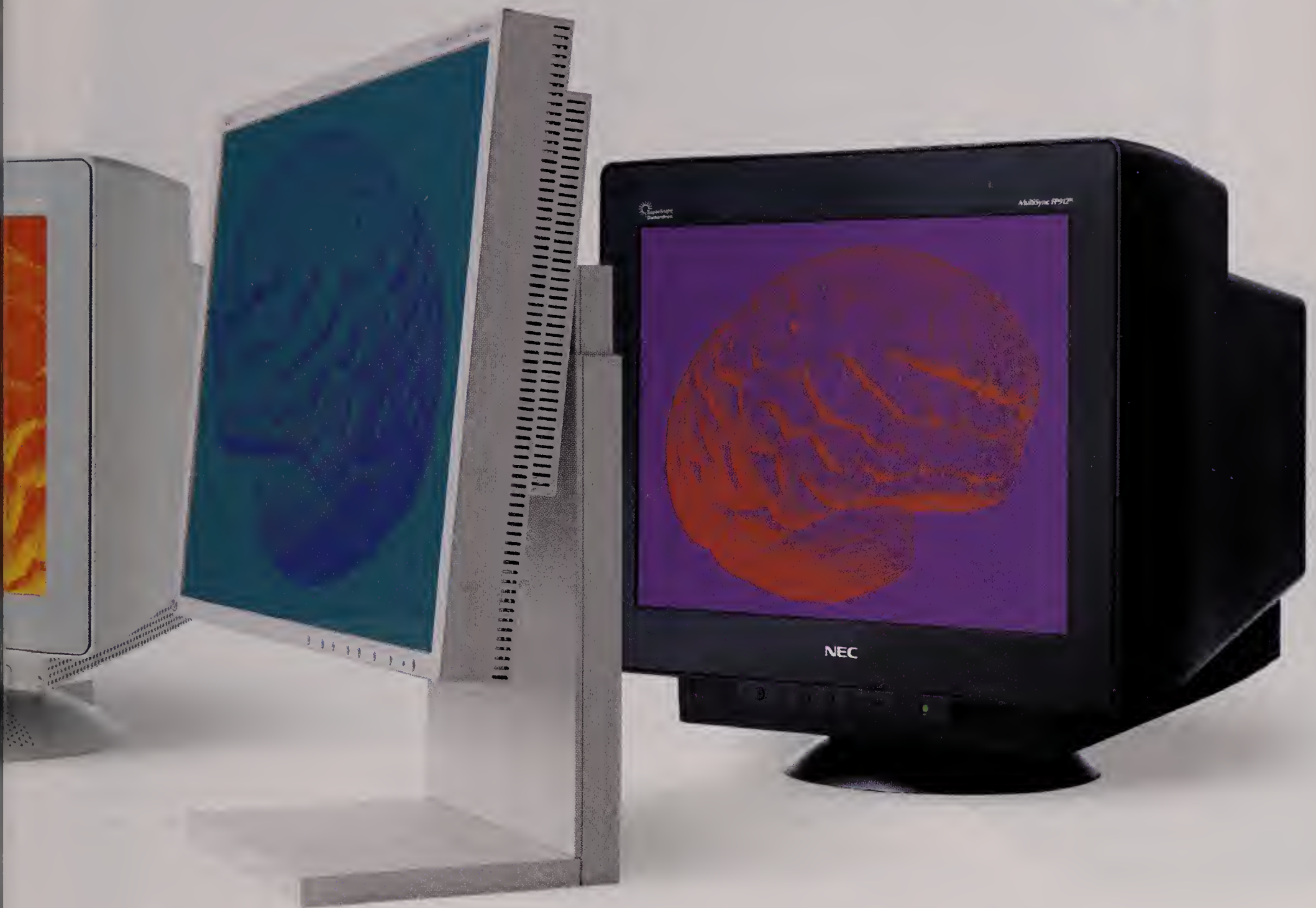
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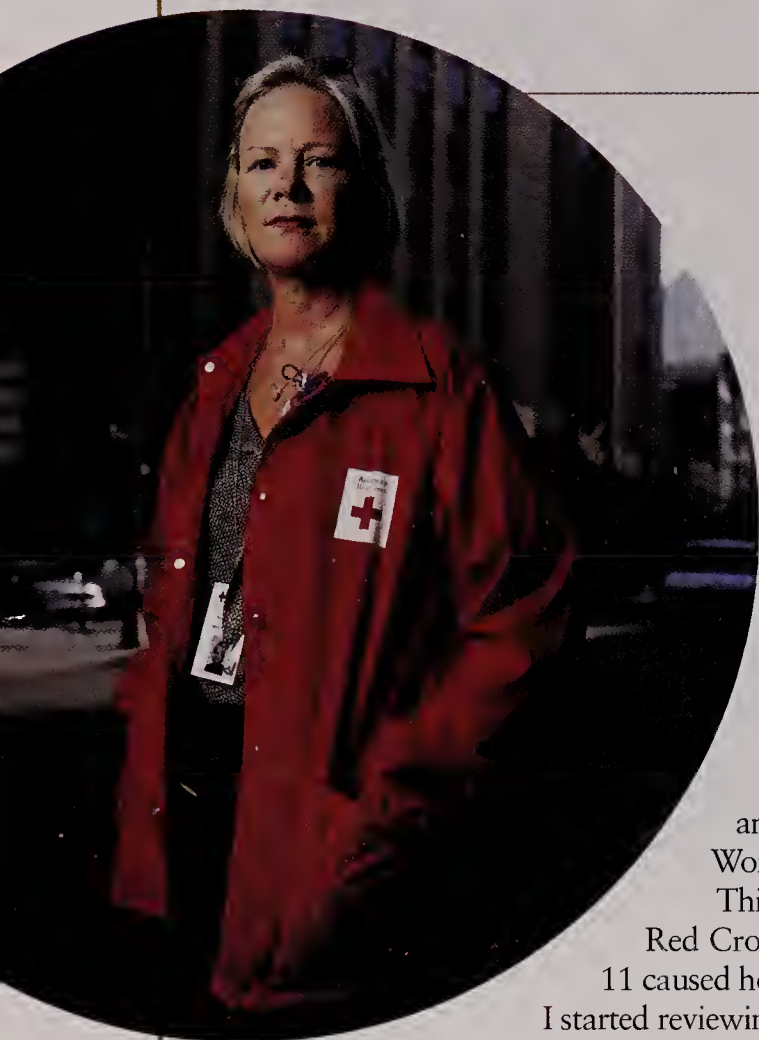
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Edited by Lafe Low and Michael Goldberg



New York Stories

On 9/11, CIOs for the city and local Red Cross used IT to aid relief efforts. We found them both still on the go.

The Answer Woman Moves On

LESLIE J. HUNT, CIO of the American Red Cross of Greater New York (ARCGNY), was known last fall as the “tall blonde in the red jacket with all the answers.” Her work was critical in the early World Trade Center attack relief efforts.

This September, however, Hunt is leaving the Red Cross. Like many people, the events of Sept. 11 caused her to reevaluate her priorities. “After 9/11, I started reviewing what was really important to me,” says Hunt, 50, who gave her notice on June 1 and stayed as a consultant until Labor Day. “I have the luxury of not having to work, so I’d like to spend more time with my family,” says Hunt, who has two grown children and lives with her husband, Steven Hunt, CFO of The Official Information Co. in New York City. “I may even go back to school to get an MBA or study nutrition.”

Things never slowed down for Hunt after last year’s terrorist attacks. “We went from dealing with Sept. 11 to figuring out what we needed to put in place so if, God forbid, there is a next time, we’ll be more prepared from a technology standpoint,” says

Hunt, who was hired as ARCGNY’s first CIO three years ago. IT issues related to 9/11 subsided by year’s end, at which point Hunt resumed work with the Atlanta chapter on much-needed CRM and ERP systems.

Although the ARCGNY is run independently from the national American Red Cross, New York did see donations decrease following concerns over the distribution of funds at the national organization in Washington, D.C. Hunt says her IT team’s projects were able to move ahead only through the continued generosity from some software vendors. “We saw some backlash from the situation at national as far as money was concerned,” Hunt

Continued on Page 32

City Servant in Action

Practically right up until his last day of work on April 5, **AVI DUVDEVANI** was on the run. Duvdevani, 54, the former acting CIO of New York City who took his post on Sept. 4, 2001, was hustling to restore telephone and computer network service to nearly all 60 government agencies that had lost service after the terrorist attacks.

The city’s central connectivity source—Verizon’s facility in Lower Manhattan—didn’t reach total recovery until late March. At that point, IT managers at the New York Department of Information Technology and Telecommunications (DoITT) could say that the city’s telephone system had full redundancy.

The perils of depending on one vendor was one of the first 9/11 recovery lessons that Duvdevani, whose title was acting commissioner, shared with CIO last fall (see “At the Center of a New World,” at www.cio.com/printlinks).

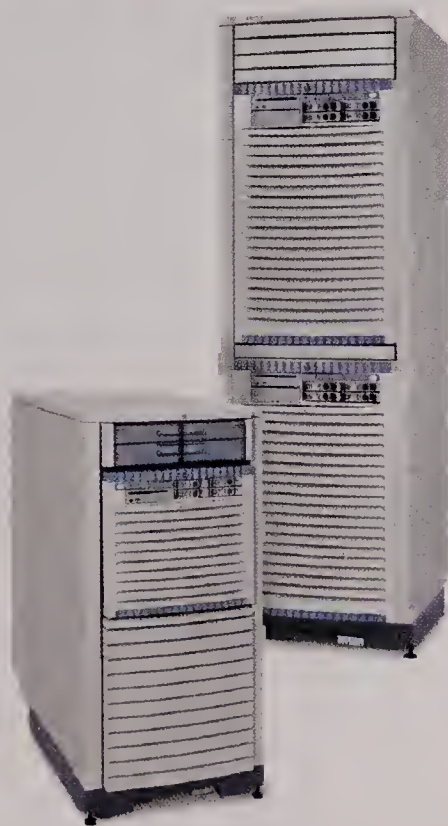
Since then, he’s documented all that he and his 40-person crisis team learned after last year’s terrorist attacks—enough to fill a 4-inch-thick binder. Duvdevani also updated the disaster recovery and business continuity plan for his successor (and longtime colleague) Gino Menchini, a 17-year city government veteran appointed by Mayor Michael Bloomberg to be the new New York City DoITT commissioner and CIO.

Continued on Page 32

Both Hunt and Duvdevani say the toughest part about moving on is leaving people they worked closely with during the aftermath of Sept. 11.



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Uniting Charities on the Web

WITH DOZENS OF charities offering support to victims of the Sept. 11 terrorist attacks, figuring out what aid is available and how to apply it has been more hassle than help to would-be recipients. Each entity has its own criteria, paperwork and deadlines. It's so confusing, some survivors have opted to apply for no aid at all.

But in a tiny office on 51st Street in New York City, Richard Flynn has been making things a bit easier for those affected by the attacks. As CTO of the 9/11 United Services Group (USG), Flynn works with a consortium of 13 private

human services organizations formed last December. He has led the IT effort to coordinate help being provided by member organizations to create a streamlined system for facilitating benefits.

Flynn has created a central repository of client information and led the creation of an application that lets USG service coordinators search a Web-based directory for clients and the benefits they received. Another app helps 9/11 victims' families contact six financial services companies that offer financial advice.

Bear Stearns donated the office space

and IT infrastructure. Ogilvy Interactive of Chicago designed the USG website. IBM granted \$1.5 million worth of software and services so that USG could build its database to track services and benefits provided by the charities. Westborough, Mass.-based Ascential Software donated data-cleansing tools.

"What's amazing here is not the technology but the fact that these charities are submitting client information from their own systems to make this work," Flynn says. "It's unprecedented."

—Stephanie Overby

Leslie Hunt

Continued from Page 30

explains. "But I'm convinced that the help we got from our software vendors would not have been so generous had 9/11 not happened. We came to the top of their list because of that."

A discounted Siebel CRM system, rolled out in August, will let the New York City and Atlanta chapters view records on anyone from donors and volunteers to people who have given blood. An ERP financial system from Great Plains, also discounted, will be rolled out in the first quarter of 2003. Those systems will help the Red Cross automate many manual processes, according to Hunt, like the reentry of data from front- to back-office systems.

Hunt also developed a much-needed disaster recovery plan ("Our previous 'plan' was to grab a server under each arm and run out of the building," she says) and installed Microsoft Exchange 2000 on all ARCGNY desktops. The hardest task she faced before leaving was telling her close-knit staff of 12. "It was very difficult because of the type of person I am. I had built my staff one person at a time, and they were very loyal. I knew this would be very difficult for them," Hunt says.

Hunt's plans include kitchen remodeling and a rescheduled three-week trip to Italy with her husband, initially planned for last Sept. 15.

While Hunt leaves a loyal staff, she took the red jacket with her. Says Hunt: "I earned that jacket."

—Stephanie Overby



Avi Duvdevani hasn't stopped moving since 9/11.

Avi Duvdevani

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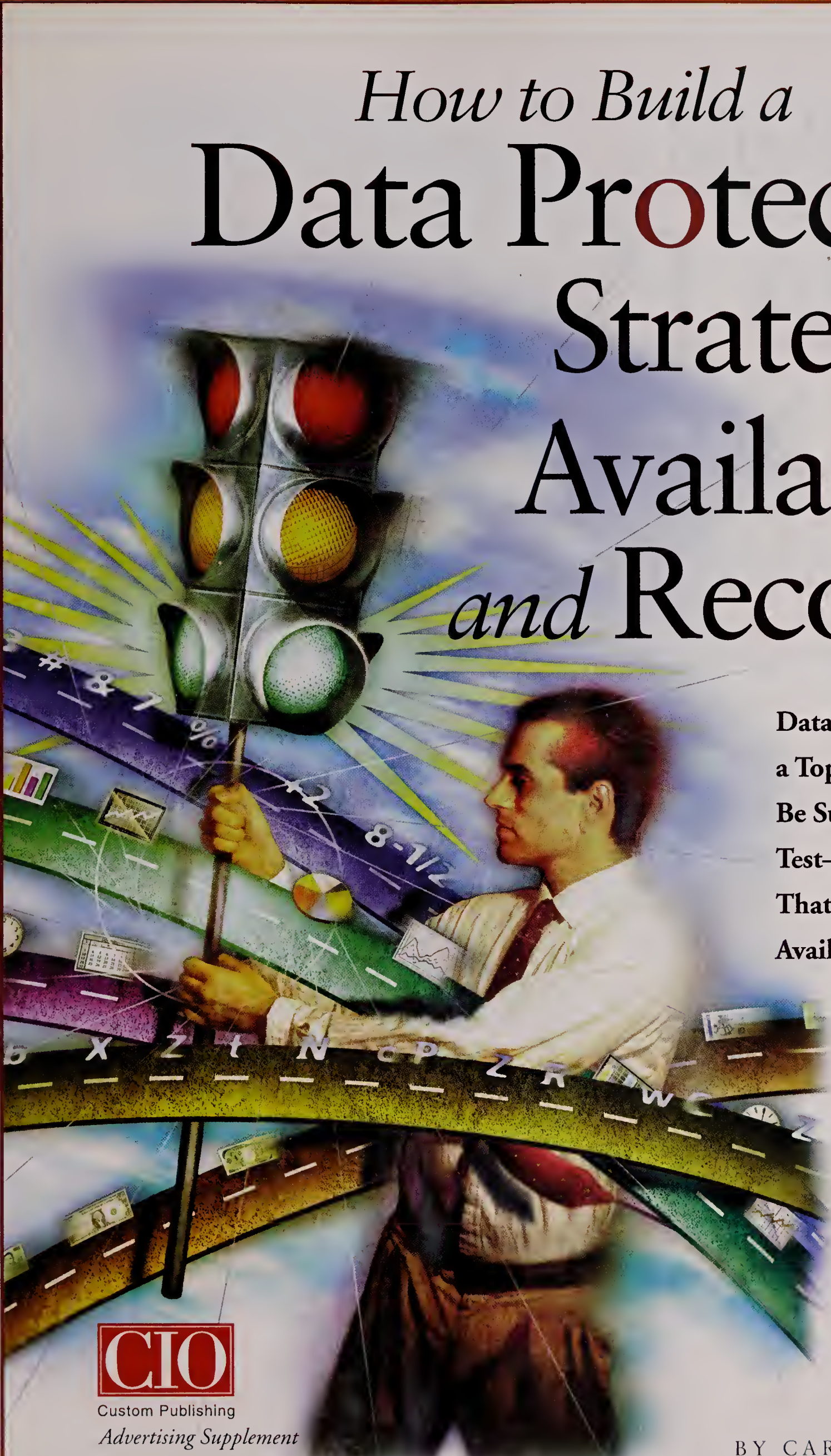
Before Sept. 11, Duvdevani and his team were prepared for what the worst-case scenario had been up until that point—Y2K. "No one could have imagined the horrific situation we faced," says Duvdevani.

Post-Sept. 11, Duvdevani revised those plans to include business continuity tactics the DoITT devised during the aftermath. "The whole idea was to force repeatable and executable processes to support communications continuity," says Duvdevani.

He conducted a strict assessment of network needs and priorities in case of disaster, giving preference to tier-one agencies, such as the police department and city hall. The plan also covered conducting a business impact analysis and risk assessment and creating a set of alternative solutions and deployment plans. "It's basically an outline of what we did after Sept. 11, except what we did then we did on the fly," he says.

After the city's government was running again, Duvdevani decided to top off his 30 years of city service with a "career capper opportunity." So on April 8, Duvdevani became the CIO of the New York City Housing Authority (NYCHA). "It was very hard for me to leave DoITT, particularly having worked with my team during a time of crisis," Duvdevani says. In his new role, he will oversee a five-year, multimillion-dollar Oracle ERP rollout and contribute to an overhaul of the NYCHA's financial and materials management. In contrast to the rebuild work he did at DoITT, "it's a great chance for me to build something from the ground up," Duvdevani says.

—S.O.



How to Build a **Data Protection** *Strategy for* **Availability** *and Recovery*

**Data Protection Isn't Just
a Top Priority, It's a Must.
Be Sure to Develop—and
Test—a Storage Strategy
That Emphasizes Data
Availability and Recovery.**



Custom Publishing
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BY CAROL HILDEBRAND

How to Build a

Data Protection Strategy *for* Availability *and* Recovery

Could you do business without faxes? It'd be painful, but there's always FedEx. Your phones? That's a tough one, but if you had to, you could. How about computers? That's a whole different story. Computers hold the lifeblood of any new economy corporation: databases of customer buying habits, online inventory tracking systems, collaborative email systems where professionals share ideas via audio, video and electronic documents. Even more compelling, savvy executives can mine these treasure troves of stored information to glean a competitive advantage and boost profits.

But only if they have the data. Consider what would happen if Amazon or Land's End could not use its web site to sell goods and service customers. Or if Wal-Mart couldn't use its distribution system to make sure that merchandisers got the right products to the right place at the right time. Or if Pfizer couldn't use its knowledge management system to speed up its patent application process. The answer boils down to more than a short-term dip in revenue. "Catastrophic loss of data can—and does—close down businesses," says Greg Meland, the president and CEO of Datalink, an information storage architect based in Minneapolis, Minn. Indeed, some corporations faced with data losses from September 11 were unable to continue as going concerns.

Data protection must be a top business priority, and that means companies must develop storage strategies that emphasize data availability and recovery. After all, storage is the vessel that holds this treasure trove of information—information that

BY CAROL HILDEBRAND



must be at the fingertips of employees when and where they need it. Safeguarding and accessing that information has become increasingly vital, and a comprehensive data protection plan lies at the heart of that ability. "In today's market, time is money, and inaccessible data or systems are not acceptable for information-savvy executives and our business customers," says Michael O'Brien, Director of North American I.T. for Datex-Ohmeda, a division of Helsinki-based Instrumentarium Corp.

In order to satisfy the demands of these information-savvy executives, "systems must have very little downtime—in other words, high availability," says Meland. "But if disaster should strike, executives also need a reliable strategy to recover the data and get systems back up as fast as possible. Data protection spans both availability and recovery, and companies should pay attention to both sides of the equation."

With the very future of a business riding on this decision, you'd think

that most companies would have long ago created detailed data protection plans. After all, that's the necessary first step to ensuring that corporate data remains safe and recoverable in the event of natural disasters, terrorism and other massive ruptures in the fabric of day-to-day business.

But you'd be wrong. "It's extremely rare to find an organization that is well protected," says Tom Sylvester, Datalink's senior director of technical services. "When you look at what plans companies have in place, very few are comprehensive. And I don't think they know."

The Disaster Readiness Consortium reports that of the thousands of businesses who have taken the Disaster Readiness Scorecard of best practices:

- 75% are in the **Danger Zone**
- 21% **Need Improvement**
- 4% meet **Best Practices**

According to Pat Martin, the president and CEO of StorageTek, a storage solutions provider based in Louisville, Colo., "While many organizations claim to have a disaster recovery [DR] strategy, the majority of the strategies are unexecutable due to outdated plans, lack of internal expertise, and inadequate testing processes. Organizations, especially those who depend heavily upon technology to operate, need to understand the costs of unplanned outages and weigh those costs against an acceptable risk management profile."

And more companies than ever before are interested in data availability and recovery, particularly in the wake of the tragic events of September 11. "It really has made people think, 'This could happen to me,'" says Diane McAdam, an analyst at Illuminata, a research firm based in Nashua, N.H.

Conseco Finance

Headquartered in St. Paul, Minn., Conseco Finance has been providing loans for manufactured housing, home equity and home improvement since 1979. Conseco Finance is a part of Conseco, an insurance and financial services firm with approximately \$94.6 billion of managed assets.

Conseco Finance maintains four separate data centers in St. Paul, Tempe, Ariz., Duluth, Ga. and Rapid City, S.D. Chief Architect Rod Lucero estimates that the company has 43+ terabytes of raw data. Like most companies in the financial sector, Conseco Finance stores a lot of data, is heavily dependent on it, and is very proactive when it comes to data protection. Conseco also runs a number of SANs.

Backup and Recovery

Conseco Finance maintains multiple data centers with identical technology, says Rod Lucero, the company's chief architect. "If I do a backup in St. Paul, I can take the tape to Tempe and that center has the same infrastructure that's capable of reading it." It also has remote asynchronous volume replication over existing TCP/IP network infrastructure.

Conseco runs frequent tests of its data protection plan to ensure that it remains in compliance. One result was that it recently discovered that some systems were outside the prescribed timeframe for backups as defined in the company's internal service level agreements. In fact, one backup took more than 24 hours. The company worked with Datalink to develop and implement a local and remote data protection strategy and architecture.

Results

Backup times were reduced by 50 to 66 percent the normal times. By using the SANs, Conseco has improved availability and tape drive utilization.

It's not a simple task, however. In order to build an acceptable risk management profile, smart executives must first identify a host of challenges to be overcome before they can build a secure data availability and recovery strategy.

Identify the Challenges **Companies must deal with the increasing technical complexity of storage.**

Storage used to be a relatively simple concept. The IS department would hang a storage device off of each server

or mainframe unit, and back them up to tape. But as corporations seek to interconnect various pools of data in their efforts to wring a full measure of worth from enterprise systems such as ERP and CRM projects, storage has grown steadily more complex. Instead of direct-attached storage, storage units have moved onto the network, or companies have built storage area networks (SANs) to further integrate storage into the corporate infrastructure. As a result, the array of software and hardware a large company uses for storage has multiplied faster than bunnies in the night. For example, a traditional storage setup generally involves only one or two vendors. But a typical SAN is much more complex, utilizing more storage software and networking technology on top of the hardware. As a result, it uses products from five to seven vendors. "Most people think disaster recovery is simple because they think, 'I replicate and I'm done,'" says Illuminata's McAdam. "It's just not that easy anymore."

The additional technology layers mean that IS departments must work harder to manage the SANs, allocate storage capacity and integrate the various products. In fact, ever larger portions of IS storage budgets are being spent on software rather than hardware. The result: All that technology means that CIOs have many more factors to consider when they create and maintain data protection plans.

Storage capacity needs continue to skyrocket.

Adam Couture, an analyst at Gartner, reports that the demand for storage capacity will balloon from 283,000 ter-

abytes in 2000 to more than 5 million terabytes by the middle of the decade. There's another wrinkle, too: Even though analysts say that prices for technology such as big disk drives are declining at a rate of 35 to 40 percent a year, the continued corporate appetite for storage means that it will remain a significant line item on the corporate IT budget—as much as 50 percent, according to some analysts. What's the bottom line on all this? Executives have made a significant investment in data storage. As they continue to pour money into this sector, the ever-increasing cache of data becomes more difficult to protect.

Uptime demands are more stringent.

For many businesses, it used to be just annoying when email went down; now, it's a crisis. As executives rely more heavily on information systems, their expectations about the reliability of those systems have taken a commensurate uptick.

"The average organization's requirement for recovery time from a major system outage now ranges between two and 24 hours. This requirement is pushed by the expectation an organization faces on all sides," says StorageTek's Martin. Customers expect supplies and services to continue—or resume rapidly—in all situations. Shareholders expect management control to remain operational through any crisis. Employees expect both their lives and livelihoods to be protected. Suppliers expect their revenue streams to continue. Regulatory agencies expect their requirements to be met, regardless of circumstances. Insurance companies expect due care to be exercised. The result? Instead of 24 x 7, people want systems up 24 x Forever, says Martin.

Disasters come in many sizes.

When people think "data disaster," they think "major catastrophe"—an earthquake or a terrorist attack. But most often, it's the little things that hurt; the

integrated into a master framework and executed accordingly. But McAdam says that such seamless planning is generally found only at companies big enough to have a discrete group of people devoted

"Generally, companies have different people responsible for different parts of the plan, and they just hope that those people talk to each other, otherwise, the plan won't jell."

—Diane McAdam, Illuminata

sprinklers go off, or a technician knocks the power cord out of a server. These small incidents won't close down an entire data center, but they will put a hitch in the proceedings. So when executives think about recoverability, they need to think at two different levels, says Scott Robinson, the CTO of Datalink. "If a server goes down in the data center, that's local recoverability. Remote recoverability is when the entire site goes down and you have to recover elsewhere." The challenge lies in successfully planning for both possibilities, he says. "The site disaster is bigger, but it's also far less likely to happen," he points out. "Hopefully, you build a plan and infrastructure that'll handle both types of events. Oftentimes, the systems built for one type of recovery can be leveraged for the other."

The different aspects of data protection must be integrated.

Data protection involves a wide range of activities, from data availability to data recovery, all of which are key components of the business continuity plan. In the best of all worlds, each activity is

to business continuity planning. "Generally, companies have different people responsible for different parts of the plan, and they just hope that those people talk to each other," she says. "Otherwise, the plan won't jell."

Do the Analysis

Chances are, your company doesn't have the cash flow available to fund an entire business continuity department. And clearly, a jumble of isolated plans will not serve corporate data protection needs. So what's the best way to proceed? In order to build an integrated strategy designed to protect stored data and information—and ensure its continuing business value—IS executives should start by analyzing the different pieces of data security and protection involved. Once all the parts of the puzzle have been identified, it's easier to decide how they fit together.

Business continuity planning comprises a large range of issues, from factors involving the actual physical buildings of a company to emergency procedures and policies for employees to follow, says StorageTek's Martin. Building a secure

storage environment, or data protection, is a third part of this discipline.

Companies often make the mistake of equating data protection with traditional backup. While the two are linked, data protection is more of a strategy, while backup is a component that provides the foundation for data protection strategies. Backing up refers to making a point-in-time copy of the data and moving it to some type of secondary media, which has traditionally been tape. Today's requirements demand that backup be augmented by other technologies that allow data to be recovered more quickly. For example, one such alternative is to use replication technology to make a copy of the data on a large RAID system.

Data protection is generally broken into two different areas: data availability and data recovery. Each part needs to be addressed, but each

however: '5 nines' availability translates into less than five minutes of downtime per year.

Achieving high systems availability is a top priority for companies such as financial service sector firms, where even a minute of downtime can cost millions of dollars. For example, William M. Farrow III, the executive vice president of the Chicago Board of Trade, says that he has little to no leeway when it comes to systems downtime. Traders at the exchange depend for their livelihood on the constant availability of systems such as his order routing and price relay systems. "I cannot go down," he says. "When we are trading, we are trading."

Executives like Farrow, a Datalink client, use several strategies to build high fault tolerance into their data architecture. The first is clustering, where two or more computers and storage devices

Recovery—Data recovery comes into play once a system goes down. "It assumes that a service has gone away and needs to be brought back," says Datalink's Sylvester. Recoverability refers to how an IS department plans to get services back up and running, and data back in the hands of business users. Local recovery is used in the case of a relatively isolated mishap that doesn't affect the entire data center. System administrators can recover copies of the data locally and get it back in production while the rest of the corporate systems remain in service. Remote recovery is the heavyweight of disaster planning; it means that an entire data center has become disabled, and IS must reproduce the environment and recover all possible data using a remote site.

Build an action plan

Creating and maintaining a good data protection strategy is a tall order. Any plan must first of all satisfy the needs of the business, says Will Headapohl, the CIO of Gateway, a computer manufacturer (and Datalink client) based in Poway, Calif. "We identified first what the company strategy was, and tried to model our data protection plan on that strategy. We felt that was the right order of things, as opposed to building a data center and then building the business strategy."

But the strategy must also stay within prescribed budget targets. On top of all that, data protection strategies must flexibly mesh the differing requirements of each of the above areas of consideration, and in an ever-more complex business and technical environment.

Small wonder that many companies blanch at the idea, and stick their heads in the sand when it comes to data

"Many companies spend months and months framing a disaster recovery plan but they won't implement it because the prospect is too daunting."

—Tom Sylvester, senior director of technical services, Datalink

also presents different challenges when it comes to building an integrated data protection plan.

Availability—This is the first line of defense in data protection; high availability refers to the practice of keeping systems up and running for a desirously long period. The gold standard for high availability is a system that has '5 nines' (99.999 percent) availability. It's a very high standard,

are linked and configured similarly; if something happens to one, the other can take over. To business users, clustered machines form what looks like a single, highly available system.

Another popular practice involves the use of controlling software to replicate the data between two disk systems to make sure that each contains an identical copy of the data. This practice is known as mirroring the data.

protection. "Many companies spend months and months framing a disaster recovery plan but they won't implement it because the prospect is too daunting," says Sylvester.

So how to start? With baby steps. Figure out what's most important, and protect that. Then work on the next bit. The decision doesn't have to be all or nothing, says Sylvester. One thing is certain, however: Companies that build no plan will find that nothing is precisely what they will be left with, should disaster strike. By following the agenda outlined below, executives will be able to draft a workable data protection plan that could save their businesses.

Analyze data for business importance.

It seems hard to believe, but many companies spend more time worrying about what technology to buy than they do analyzing their business needs for storage. Sylvester recommends the opposite tack: "You've got to begin on the flip side and let business priorities drive the strategy."

Start by talking to business unit leaders, as they are the people who know which data are most vital to their business. "You can't have any kind of recovery plan without including the business side," says Rod Lucero, the chief architect of Conseco Finance in St. Paul, Minn. "They drive and map out what the important systems are."

Data generally gets divided up into two or three categories of importance:

Mission-critical data—This is the stuff that you can't live without; Amazon's website, or Bear Stearn's online brokerage system.

Critical data—This data is important to lines of businesses within the enterprise, and losing it will have an impact.

Gateway

Gateway, a multibillion-dollar Fortune 500 company based in Poway, Calif., is a pioneer of the made-to-order personal technology industry.

Gateway's open systems infrastructure is built upon multiple SANs. The PC maker's dependence on e-commerce for business, as well as its manufacturing systems to custom build PCs in a very short period of time, means that it needs high availability from its systems and data.

Backup and Recovery

The company recently worked with Datalink to implement an exercise designed to prioritize and categorize its systems and data in terms of disaster recovery and protection. "We went through all our data and prioritized it as mission critical, desirable, and 'the rest,'" says Geoff Obeney, the vice president of technology infrastructure. "After we prioritized it, we were able to look at what storage technology we had in place and aligned the technology to the data based on those parameters." For example, the company's financial and manufacturing systems were deemed mission critical, and thus have highly available backup and remote mirroring in place.

Results

In terms of disaster recovery as a whole, Gateway's focused approach—which puts business goals as the basis for every storage decision—has paid dividends, says Obeney. "We've had less downtime, and fewer people standing idle," he says. "Given that we know the cost of downtime per hour per business segment, we can quantify the ROI, which has been significant. It has allowed us to reduce our IT budget."

However, the company won't hit the skids if it's inaccessible for small periods of time.

Non-critical data—It's nice to have this data if you can get it, but it's not strictly necessary (e.g. reference data that can be reconstructed from another source).

At Datex-Ohmeda, O'Brien's group segregates organizational production data from non-production data for the

purposes of backup and recovery. Examples of production systems are ERP, email, logistics and finance; "These are the systems that we need daily access to," says O'Brien, a Datalink client. "These are the priority systems that we focus our backup, recovery and testing efforts on."

Conducting such an analysis can uncover some surprises, and it's smart to periodically revisit the exercise, as

data can wax and wane in importance. O'Brien, for example, says that his company has become aware over the past 12 to 18 months of the continual rise in email's importance. "It's more than just a replacement for the phone these days," he says, particularly since his company operates in several time zones. "It's truly a collaborative working tool, and that's the way we use it."

Do some risk management assessment.

Many companies put the lion's share of their time and money into planning for large disasters, and they just might be betting on the wrong horse. "The vast majority of restores are single file restores rather than catastrophic recoveries," says Robinson. He advises that companies analyze the likelihood of a big disaster vs. the small ones, and make sure that they don't skimp on

Map your recovery strategies and technology to the data.

To put this very simply, the most important data belongs on the most expensive technology—because the expensive stuff is generally also the fastest at recovery. For example, the data in a company's mission critical category may need '5 nines' availability, which means tape storage by itself cannot meet these needs. It will simply take too long to get the

Understanding the Nines

Here's What '5 Nines' Protection Really Buys You

99.999% uptime per year	5 nines	about 5 minutes of downtime
99.99% uptime per year	4 nines	about 50 minutes of downtime
99.9% uptime per year	3 nines	about 8 hours of downtime
99% uptime per year	2 nines	about 3.6 days of downtime

this includes both planned and unplanned outages

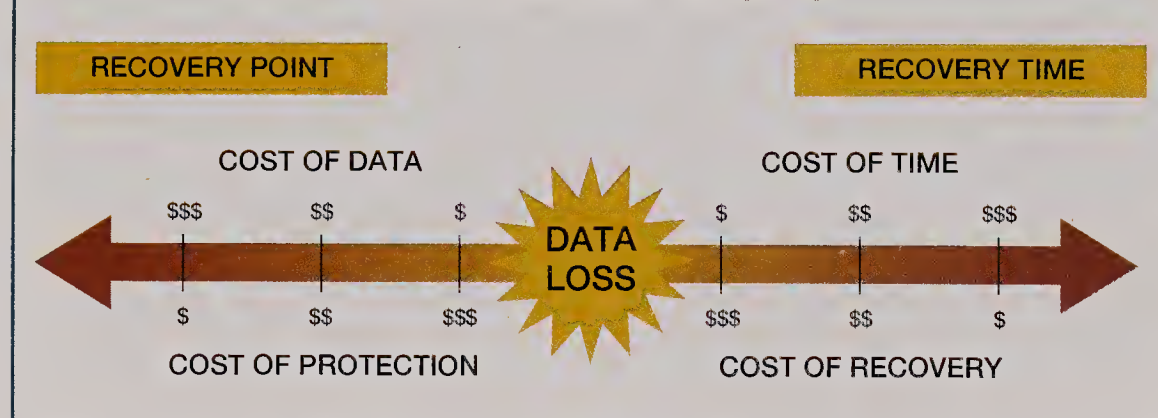
comparing the cost of lost business caused by data outage vs. the amount it will cost to get a system up and running, executives can arrive at a good balancing point for the two. Sylvester offers a hypothetical example. "Say an e-commerce website collects \$25 million a day, and the cost to recover the site within 8 hours is \$5 million. Depending on your risk tolerance, it may well make financial sense to pursue that strategy," he says.

Again, a great deal of input must come from the business side. At Consec Finance, for example, Lucero says that the IS group will present business executives with the costs to recover a system in various windows of time. "We give them the windows of time and the costs associated with each, and let them go window shopping," he says.

Check for data interdependencies.

Once the data is divided into different levels of business importance and matched with a pertinent recovery technology, it's time to take a second look. The assignment: Make sure that the tier one applications don't depend for data on a tier two application that isn't backed up at the same rate. Otherwise, the scenario could play out like this: Your ERP system is mission critical, so

Data Protection Timeline



When developing a data protection strategy, you must consider both how much data you can afford to lose and how long it will take to get your data back.

the small stuff. "If at some point you're considering a big ticket item such as remote mirroring or global clustering, you need to keep in mind those are for whole site disasters. Make sure you've built your system to cover the small—but far more likely—local disasters first," he says.

data back into production again. Protecting mission-critical data will generally involve a combination of technologies, such as data replication, clustering, or even a completely redundant data center that's updated in real-time.

Each category represents a different level of availability and recovery. By

its information has been mirrored in real-time to a remote site. But the ERP system draws data from a small distribution system. The pipes are too expensive to mirror that system in real-time, so IS decided to back it up onto tape every six hours. The result: When the time comes to recover both systems, IS staffers will face the prospect of forcing six-hour old data to mesh with very current data. Not a pleasant situation, says Illuminata's McAdam. "One of the key questions I ask is whether there are interdependencies in the applications. If people say no, I say, 'Go back and look again.'" And once the inevitable is discovered, it's time to juggle the importance of applications and reprioritize until each application resides at the same level as the ones it feeds.

Remember that backup is not recovery.

There's no question that making a copy of all corporate data is a basic step in a good data protection plan. "Backing up data is like buying catastrophic health insurance," says Dan Tanner, senior analyst of storage and storage management at Boston's Aberdeen Group. "If something happens, you're covered, but you hope to hell it never happens."

But many companies assume that backing up data means that they are protected, and that's a big mistake, says Datalink's Robinson. Backup strategies are designed to provide file level protection and restoration capabilities, and typically backup architectures reside on the same site as the primary storage pools.

Obviously, because the primary and backup architectures are in the same physical location, if a business were to

experience a disaster where the backups could not be accessed or the entire facility were destroyed, the backup data would be useless.

The bottom line is that "Backup and recovery are two different things," Robinson says. For example, say a company decides it can afford to lose one day's worth of data, and can afford to be down for one day. At the same time, the corporate recovery

plan consists of nightly tape backups that are then sent offsite. That plan fulfills only one part of that equation. "If the tapes are going offsite it could take weeks to recover the data on them, so that plan won't answer the company's needs," points out Robinson. After all, he says, "Just because you have backed up a day's worth of data doesn't mean it'll take a day to recover it."

Top 5 Tips for Building a Strong Data Protection Environment

By Scott Robinson, CTO, Datalink

- 1 Get executive buy-in.** Get it in writing if you must, but make sure that senior business leadership promises to be involved in the planning and implementation of a disaster recovery plan.
- 2 Prioritize information systems in terms of business importance.** Figure out which systems are most critical to the business, which are less so, and identify the various databases, applications and supporting infrastructure that go with each.
- 3 Weigh the cost of being down vs. the risk of being down.** Perform a business impact analysis to understand the costs of being down for each of those critical systems. Then weigh that against the risk of any one type of incident actually happening (e.g. a hurricane vs. an electrical plug getting knocked out of the wall). This helps you determine what you should spend on recovery technologies.
- 4 Check for data interdependencies.** Some of the mission critical systems may draw data from secondary systems; your recovery strategy needs to take that into account.
- 5 Test your plan.** Make sure your restore procedures work in real-time before you ever have to use them for real. And make sure that business users verify the integrity of the restored data.

Pat Martin, StorageTek's CEO, weighs in on availability and recovery

On the importance of building a data protection strategy: Business survival necessitates planning for every type of business disruption, from natural disaster to hardware and communications failure. While such disruptions cannot be predicted, they can wreak havoc upon the business if no strategy is in place.

On many companies' vulnerability...

While many organizations claim to have a DR strategy, the majority of the strategies are unexecutable due to out-dated plans, lack of internal expertise, and inadequate testing processes. Organizations, especially those who depend heavily upon technology to operate, need to understand the costs of unplanned outages and weigh those costs against an acceptable risk management profile.

On how to integrate backup and recovery plans...

Understand where the backup architecture fits in terms of file level restoration needs. For example, if a disk platform is not mirrored and a file corruption or hardware error occurs on that platform, then a backup architecture could be used to restore the affected file(s). Additionally, for non-critical applications, a backup architecture could be used to supply the data to a remote electronic vaulting architecture to move the data offsite. The use of one particular technology or architecture is predicated upon the recovery time (RTO) and point (RPO) objectives defined by the business for each application used to support its business processes. RTO and RPO are usually quantified via a business impact analysis. With this understanding, the customer can make educated decisions on which architectures are required, and how to integrate the plans, while understanding the investment required and associated risks.

On the complexity of building a good data protection strategy...

With the growth of e-commerce and other factors driving system availability expectations toward 24 x Forever, the average organization's requirement for recovery time from a major system outage now ranges between two and 24 hours. This requirement is pushed by the expectation an organization faces on all sides. Customers expect supplies and services to continue—or resume rapidly—in all situations. Shareholders expect management control to remain operational through any crisis. Employees expect both their lives and livelihoods to be protected. Suppliers expect their revenue streams to continue. Regulatory agencies expect their requirements to be met, regardless of circumstances. Insurance companies expect due care to be exercised. So the complexity is there, but it's manageable as long as you set aside appropriate resources.

In other words, building a solid backup strategy is just the first step towards building a good recovery plan. "A good recovery plan incorporates the right restoration architectures given the recovery time and point objectives of the business, by application," says StorageTek's Martin. "Therefore, a backup strategy is an integral component of a comprehensive recovery plan, but in and of itself, is not an entire recovery solution."

Agrees Tanner, "You can't recover if you don't have backup, and there's no point in backing up if you don't have a good recovery plan." Companies should have plans that address both.

To build those plans, Robinson recommends going back to that favorite business tool, the cost/benefit analysis. In this case, IS executives need to compare the cost of recovering the data they've backed up with the cost of doing business without the data. "You have to find a balance between what it costs to lose data and what it costs to recover that same data, and figure out how far on one side or another they need to be," says Robinson.

So, for example, if a company wants its data recovered very quickly—and what company doesn't—it can implement technologies such as a remote site that updates data in real-time, instant mirroring and frequent point-in-time data copies. Naturally, these technologies don't come cheap—not as cheap as tape backup, for example. So CIOs find themselves weighing the cost of the recovery technologies against the value of the business data to be recovered, and finding a balancing point that satisfies both budgetary and business demands.

Take the plan for a test run.

McAdam at Illuminata tells the story of one customer she visited who had a very impressive 250-page disaster recovery plan. "I asked, 'Did everything work right the first time you tested it?' and the client got a funny look on his face and said, 'What, you wanted us to test this plan?'"

In short, yes. It's all very well to have detailed a strategy for protecting and recovering corporate data, but don't wait until the data center is flooded to find out whether or not it works. And just one initial test isn't enough, either. Data flows change, systems get reconfigured, recovery times can balloon as databases grow. "These plans still have to be tested six months and a year from now to make sure they still work," say McAdam.

For example, Geoff Obeney, vice president of technology infrastructure at Gateway, says that they've tested their plan on an ongoing basis. "These plans always need to be tweaked," he says. "The first time we did it, we learned a lot. The second time less, and the third time even less."

O'Brien agrees. Datex-Ohmeda continually conducts tests of tape backups to make sure that they work. "We want to make sure that we're actually backing up what we plan to, and can efficiently recover it." In the course of testing, O'Brien's staff has uncovered some anomalies—areas of systems that weren't being backed up as well as planned, or volumes of data that got moved to a different area and fell between the cracks. So as a result of the periodic testing, O'Brien's staff has been able to identify areas for improvement and effectively manage it. And once again, Lucero says that it's helpful

to have folks from the business side review the recovered data to make sure it's correct. "The business people are the ones who know the data and know what it should be," he points out. "We're just the stewards."

Look at how existing technologies can help you.

While newer technologies are undoubtedly faster at backing up and recovering data, they're also more expensive. Companies can stretch their storage dollar further by taking an inventory of their storage products to see what forgotten gems may lurk in the data center hinterlands. "It always amazes me how much shelfware is out there," says McAdam. "Companies might already have half the equipment they need. For example, many SAN software appliances can do replication from one site to another," she says.

Think about calling in outside help.

As storage technology grows more complicated, so does the task of building a data protection and recovery plan. Lucero, for one, says that he's found it helpful to get advice from vendor-neutral advisors such as Datalink as he's implemented new technologies such as SANs and large new investments in disk storage. "They always bring to light what cer-

tain technologies bring to the table, without trying to push a certain manufacturer," he says.

The past decade is littered with examples of companies that cleverly leveraged their information assets into competitive advantages. For one, the Ritz-Carlton Hotel chain's store of information on frequent customer preferences has helped that company score a very loyal clientele. And then there's FedEx, whose order tracking system knocked the stuffing out of the competition when it first debuted. Then there are companies such as Charles Schwab online, which literally built an entire business from electronic data. All these companies would never have achieved their successes if they were unable to analyze and draw conclusions from databases and files of business data. And storage is the common denominator that lets them do so.

It just makes good business sense to safeguard what has become one of the crown jewels of almost any Information Age corporation: corporate information assets. As stewards of the corporate systems, CIOs are in a prime position to provide a strategy to keep that data safe and available. And by creating and implementing such a strategy, IS executives can truly shepherd their company to a sustained competitive advantage. •

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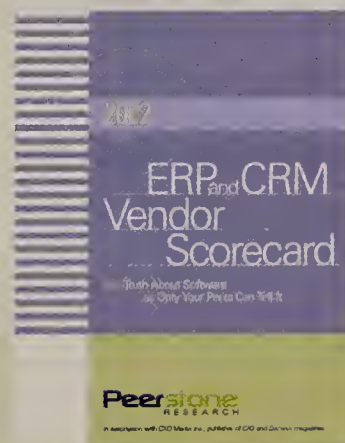
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What They Said Then, and Now

Last fall in the wake of the Sept. 11 attacks, we asked experts what CIOs should do in critical areas. We recently contacted them to see how their views have changed.

JOHN MCCARTHY, executive director of the critical infrastructure protection project, George Mason University Law School, Arlington, Va.

LAST YEAR, McCarthy said that after 9/11 corporate leaders needed to think about people as well as computer systems when planning for disaster recovery.

NOW, McCarthy says the people side of risk management is more important now than it was last year, but since Sept. 11 most companies have still focused on using technology in preparing response to physical threats or cyberattacks. "Yet very few people in either the government or the private sector are discussing security for that technology," he says. "And that makes your organization and your people more vulnerable." CIOs, he says, must act as a champion for security when leaders discuss risk management. "They are the lead technology change agent and the first line of defense," he says.

JOSEPH BADARACCO, professor focusing on leadership and ethics, Harvard Business School, Boston

LAST YEAR, Badaracco stressed that managers needed to get back to work but also keep lines of communication open. "Managers have got to find a way to give people space and let them work through this."

NOW, Badaracco says organizations have returned to an uneasy normality, and managers are once again dealing with basic business issues. "People can't forget, but routines and day-by-day stuff are taking up most of people's minds now. But I don't think it would take much to disturb this uneasy normality. If something else happens, organizations and managers will have to react to the renewed feelings from the original event."

DAVID DOBRIN, president, B2B Analysts, Cambridge, Mass.

LAST YEAR, Dobrin said global business would need to depend on IT more than in the past. "CIOs need to provide the business with the capability to be more responsive, to get advanced warnings from customers, to look at point-of-sale data from retailers and feed that back to manufacturing," he said. He also predicted that business travel would grind to a near halt. "The cost of business travel will now be spent on IT," he said.

NOW, Dobrin says he is surprised by how quickly business travel came back. "Yes, videoconferencing did get a boost but not a terribly big one," he says. But even more important is a subtle shift in attitudes since 9/11 that has affected IT projects.

"In IT, you see this every day in people's real reluctance to take

risks on projects," Dobrin adds. "With big IT projects, of course, there's been plenty of evidence that bad things can and do happen. But in the past, this evidence has been ignored, or CIOs have said, I'm a good project manager, so it won't happen to me."

"The pendulum has swung away from absurd overconfidence. But the shame of it is that even good projects are being shelved."

DAVID FOOTE, president, Foote Partners, New Canaan, Conn.

LAST YEAR, Foote said that IT leaders needed to help workers through the 9/11 aftermath by keeping communication channels open. "The companies with strong leaders are the ones that were talking with employees and customers right away," he said.

NOW, Foote says that sadly, that hasn't happened to any great extent. "For every contented employee there are four others who are bitter, demoralized, confused or stressed out from the increased workload following layoffs that they aren't sure how they feel."

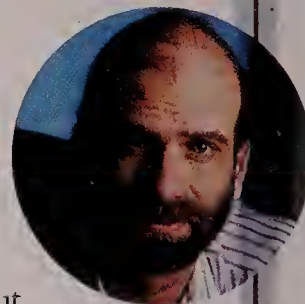
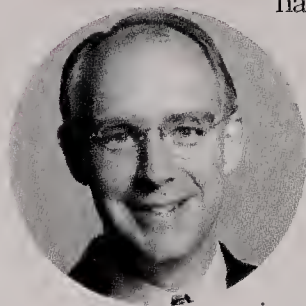
When a company is in rough shape, CIOs need to lead, Foote says. "Nobody believes conditions will be getting better anytime soon, given the ongoing economic recession, accounting scandals and anticipation of future terrorist attacks. But this is the hand that CIOs have been dealt. They need to try much harder, raise the level of their game. If they lack experience or are unsure of what to do—and many are—they should talk to people who do know, seek out information, and practice what they learn."

BRUCE SCHNEIER, founder and CTO, Counterpane Internet Security, Cupertino, Calif.

LAST YEAR, when we asked Schneier if 9/11 had changed anything, he called America a bright-shiny-object sort of culture. "If the bright shiny object changes next month, we'll talk about that," Schneier said. "Right now, security is important. But will anything change? Who knows?"

NOW, Schneier says we've moved on to the next object—business scandals. "I wish I could say that everyone has made serious changes in their security," he says. "They haven't. Everyone said, Yes we want to make these changes, but when push came to shove we had to get our product out the door. We had to stay in business. I wish I could tell you different."

—Simone Kaplan, Susannah Patton,
Sarah D. Scalet and Ben Worthen

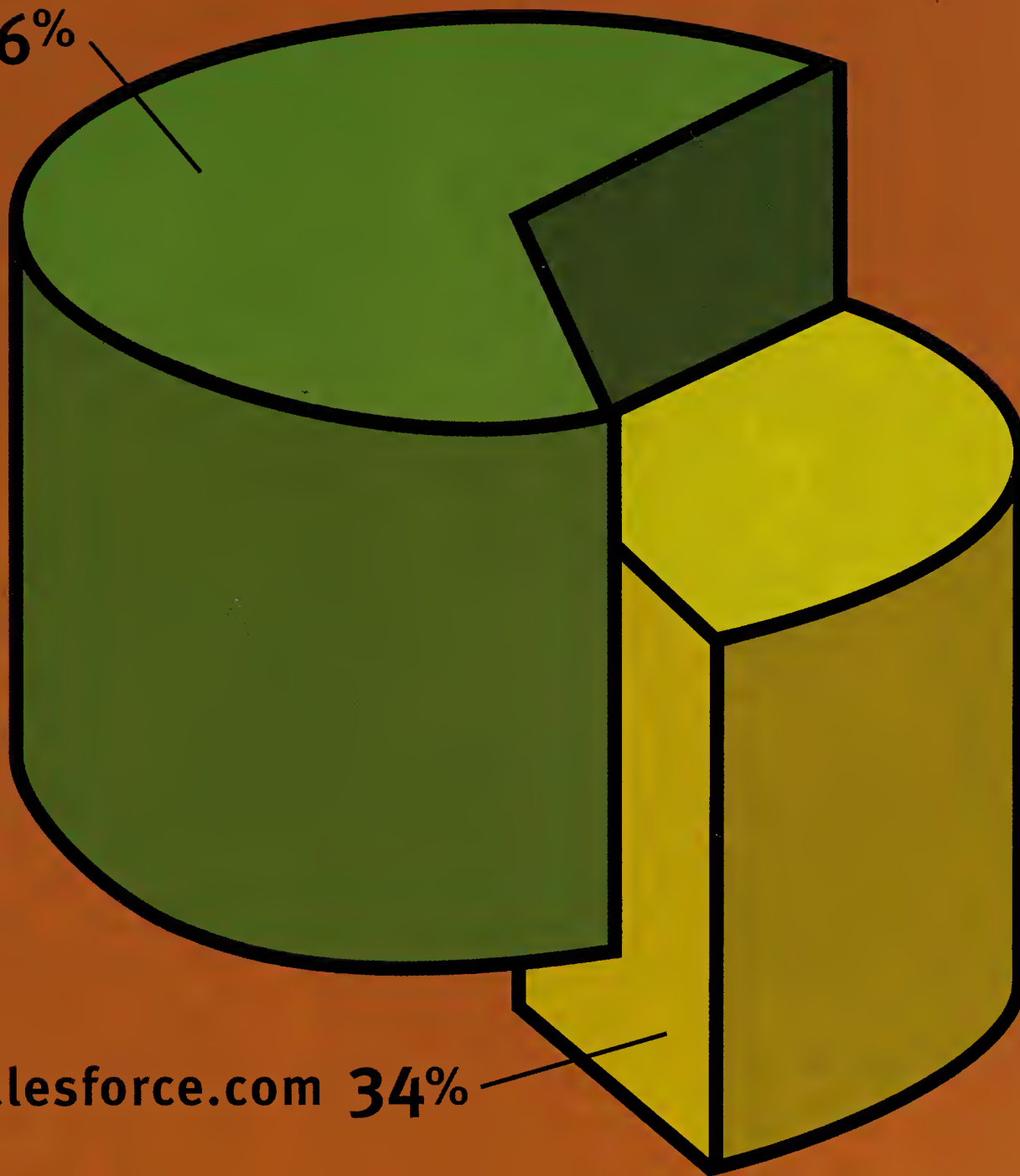


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By the Numbers

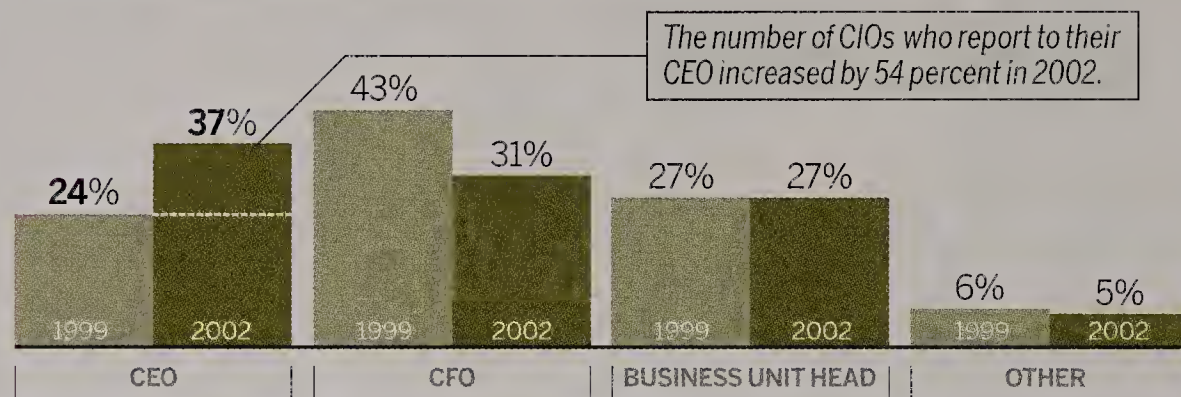
By Lorraine Cosgrove Ware

It's Who You Know

YOU'LL SAVE MONEY WHEN you align IT with business. And that starts with your reporting structure. Companies in which the CIO reports to the CEO show greater business alignment than those that have a differ-

ent reporting structure. These companies lower their user costs by 17 percent compared with companies whose IT is not aligned with business, according to Hackett Best Practices.

Who Do You Report To? Alignment begins with the right relationship.



When IT Aligns with Business We All Save and Work Better

Aligned companies save on their IT costs at a rate of 17 percent as compared with nonaligned units, and they also finish the projects they start.

TOTAL COST PER I.T. USER

Technology not aligned with business strategy	\$12,236
Technology aligned with business strategy	\$10,111
Savings per user from aligning IT with business	\$2,125 or 17%

PERCENT OF ONE YEAR PROJECTS COMPLETED TO SPECIFICATION

Technology not aligned with business strategy	67%
Technology aligned with business strategy	95%

Best Practices

Align the CIO-CEO reporting structure. There is a direct correlation between closer business and IT alignment and reporting structure. When the CIO reports to the CEO, the CIO has direct interaction and knows what the CEO's objectives are. The CIO has clear direction on what the IT priorities need to be.

Align IT projects with business priorities. Link IT and business priorities to reduce waste and achieve higher IT project success rates.

Encourage your CEO to think long term. Companies that centralize or consolidate their IT operations had 24 percent lower operational support costs per end user. Additionally, the consistent use of IT standards lowered companies' application development costs per user by 41 percent, according to Hackett Best Practices.

Check Your IT Alignment

1 The largest IT initiatives, in terms of budget and resources, can be directly linked to business goals and objectives.

☐ TRUE ☐ FALSE

2 Business managers drive major IT initiatives in conjunction with IT managers.

☐ TRUE ☐ FALSE

3 Your IT strategy and planning is directly linked to your company's strategy and planning processes.

☐ TRUE ☐ FALSE

4 IT is generally managed as an investment rather than an expense.

☐ TRUE ☐ FALSE

5 IT is an equal agenda item in the company's strategy and planning sessions.

☐ TRUE ☐ FALSE

If you answered true for every question, you're aligned. For a complete alignment assessment, see the 25-question CIO Alignment Index online, codeveloped by CIO and Boston-based consultancy ICEX. Go to www.cio.com/printlinks.

SOURCE: "THE 2002 BOOK OF NUMBERS—INFORMATION TECHNOLOGY," A HACKETT BEST PRACTICES BENCHMARKING STUDY OF 2,000 GLOBAL COMPANIES



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On the Move

By Meridith Levinson

Faas Brings Black Belt Experience to New Job

DON'T MESS WITH STEVEN FAAS. The new vice president and CIO of ITT Industries has a black belt—a Six Sigma black belt, that is.

The mother of all quality initiatives, Six Sigma aims to make business processes—everything from manufacturing to billing—run as smoothly, efficiently and error-free as possible. The practice, which began at Motorola, took the business world by storm in the 1990s when General Electric's Jack Welch proclaimed it a top corporate priority.

Faas endured the rigors of Six Sigma under GE's tutelage. He served as CIO of the energy products division of GE's Power Systems business until last May. To earn his Six Sigma black belt certification at GE, Faas had to complete training, serve in a dedicated, full-time Six Sigma role for 18 months, execute a special project, mentor green belts, and pass a multiple choice, fill-in-the-blank, open-book test. The test included questions about the best ways to execute a Six Sigma project and required statistical calculations.

While at GE, Faas says, he worked on hundreds of Six Sigma projects. "We used Six Sigma on virtually any deployment of new software," he says. "Prior to deploying new software, we used Six Sigma to define and baseline our existing processes [that the software was going to automate or facilitate], analyze the defects in our existing processes, make improvements to the processes through the new software solutions and rigorously test it to ensure that it was bulletproof."

Now 40, Faas is bringing his Six Sigma experience to ITT, which he joined in June and where his top priorities include standardizing and centralizing the company's IT infrastructure. ITT has been running its own flavor of Six Sigma, which emphasizes projects that add value to the bottom line, since 2000. "By having a common



infrastructure, we can better deploy value-based Six Sigma because a common infrastructure will help us leverage best practices across the organization," says Faas.

David Anderson, senior vice president and CFO of ITT and Faas's boss, says his new CIO's experience with Six Sigma is an important asset for the company. "Having someone who is versed in continuous improvement and whose knowledge set is on the front line, measuring results and working with a team, is very important. He brings a terrific set of qualities to the table," says Anderson.

Steven Faas's Six Sigma black belt helps him keep IT projects on track.

News of Other Moves

Maynard Webb, president of eBay Technologies, adds the title of COO to his business card. Webb continues to report to Meg Whitman, eBay's president and CEO, and continues to lead the company's technology, customer support and product development divisions.

Geir Ramleth has rejoined Bechtel as CIO for the San Francisco-based engineering and construction company. He previously served as manager of commercial systems in Bechtel's controller organization.

Joseph P. Kovach joins Advanced Energy Industries, a developer of components for the technology industry, as vice president and CIO. He comes to his new post from Interlink Group, where he was COO.

William L. Avery, CIO of the Life Fitness division of Brunswick, a Lake Forest, Ill.-based manufacturer of boats and boating equipment, has been named CIO of the company.

Thomas A. Hull joins Welch Allyn as vice president and CIO. Hull brings more than 18 years of business and IT experience to the Skaneateles Falls, N.Y.-based medical equipment manufacturer. Most recently, Hull worked at IBM.

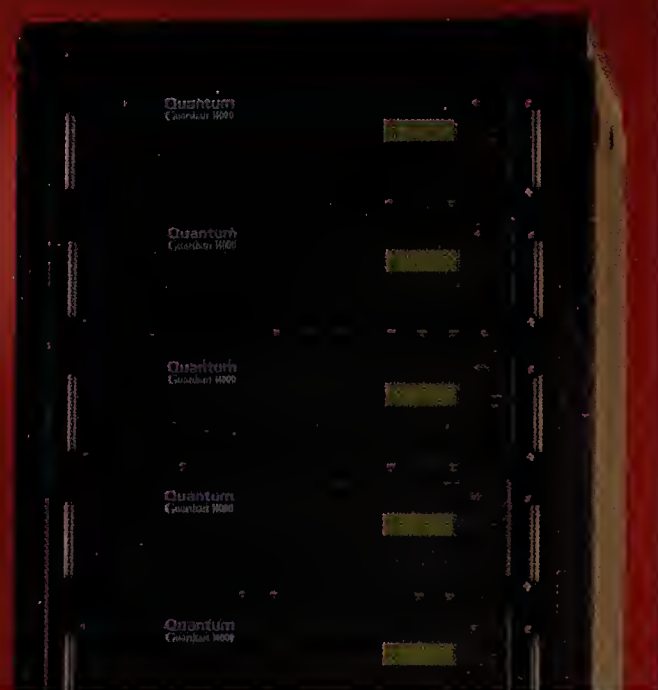
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The China Syndrome

COMPANIES HOPING TO DO BUSINESS in China will have to play by China's rules. The world's largest market hasn't changed, even with the country's joining the World Trade Organization last year. E-commerce business models in China must be at once technologically more sophisticated and operationally more basic than those at home.

On the technology side, companies entering China should consider investing in wireless Internet access. The Chinese Ministry of Information Industry has made wireless technology one of its top priorities. China's mobile Internet user base is expected to approach the number of traditional Internet users by 2005, according to BDA China, an IT market research company in Beijing. Companies setting up shop in China must also prepare to comply with China's homegrown IT standards.

On the operations side, get used to cash payments. Most Chinese citizens don't have credit or debit cards. Dell Computer, for one, lets customers pay cash for their purchases at local banks.

—Shidong Xu and Elana Varon

CIO.COM

To read more about **E-COMMERCE AND DOING BUSINESS IN CHINA**, visit www.cio.com/printlinks.

FUTURE TECH

Now *That's* CRM

YOU'RE STRIDING through a shopping mall concourse. You pass signs advertising soft drinks, beer. You hear a baritone voice. "John Anderton, you look like you could use a Guinness!"

That's just one way makers of the movie *Minority Report* use eye-scan recognition systems and CRM to cast the science fiction future of 2054 as a place where you can't hide from personalized sales pitches. It's that kind of assault that prompts Tom Cruise to seek an eye transplant to help his character, Anderton, outwit his pursuers.

So there is Anderton rushing into The Gap, when an interactive screen greets him. "Hello, Mr. Yakamoto! How did you like those tops you bought last time?" Lesson: CRM projects will never be easy.



This Date in IT History

Sept

6

Computer scientists at Bolt, Beranek and Newman in **1968** propose building a packet-switching network for the Defense Department's Advanced Research Projects Agency network (ARPAnet), a precursor to the Internet.

7

David Packard is born in **1912** in Pueblo, Colo. Packard would go on to cofound Hewlett-Packard in 1939 (with fellow Stanford graduate William Hewlett) as a maker of electrical testing equipment.

9

Grace Murray Hopper finds the first computer "**bug**" in **1945**. A moth had caught itself in the circuitry of the Mark II computer system at Harvard. Hopper and an assistant remove it with tweezers.

11

More than 3,000 users per minute try to **access an online version** of the report on President Clinton's relationship with Monica Lewinsky posted on Independent Counsel Kenneth Starr's website in **1998**.

In **2001**, the United States suffers the worst **terrorist attack** in U.S. history when planes hit the World Trade Center and the Pentagon, killing 2,936. Communications are disrupted throughout Northeast.

12

In **1958**, Jack Kilby of Texas Instruments tests the **first integrated circuit**.

Marc Andreessen unveils a **new Web browser** called Mosaic Netscape in **1994** at a trade show.

18

Two Web domain-name groups, Network Solutions and the Internet Assigned Numbers Authority, form the nonprofit **ICANN** (Internet Corporation for Assigned Names and Numbers) in **1998** to oversee the domain-name system.

20

In **1988**, Sears and IBM roll out **Prodigy**, a videotext service costing \$9.95 per month, to subscribers in seven cities. It becomes a pre-Web rival to CompuServe, GE's Genie and The Source (now AOL).

22

IBM announces in **1997** that it can make computer **chips with copper** instead of aluminum, a development that could increase computer speeds by up to 40 percent.

23

In **1884**, Herman Hollerith, a 24-year-old mechanical engineering instructor at MIT, files the **first patent** for an adding machine that uses punch cards. Hollerith would go on to found the Tabulating Machine, a forerunner of IBM, in 1896.

Government officials in Argentina **slice phone rates** in half for Internet users to encourage citizens to get online in **1997**.

25

In **1956** in New York, AT&T Chairman Cleo Frank Craig makes the **first trans-Atlantic telephone call** to Charles Hill of the British Post Office in London.

29

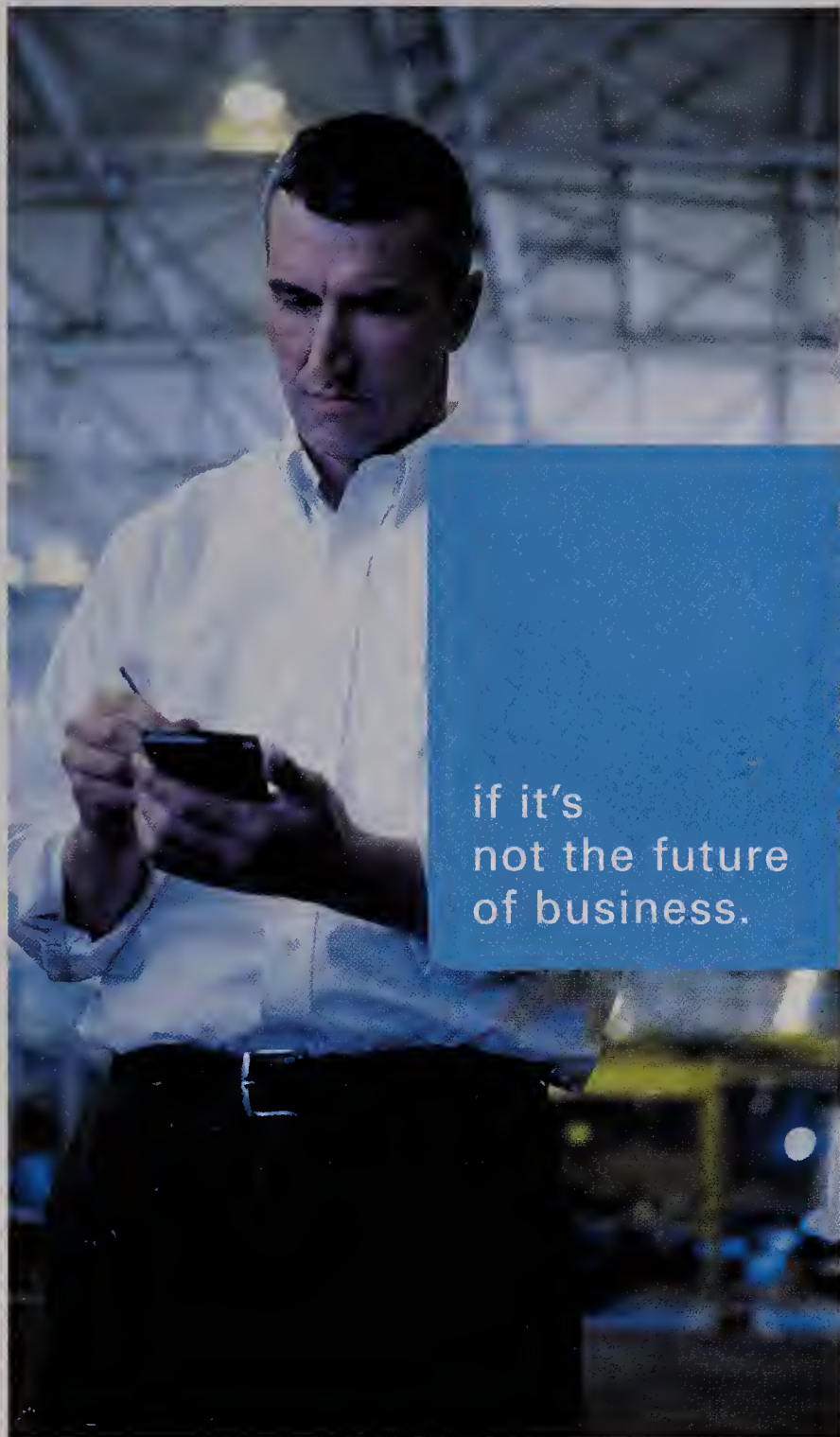
Compaq unveils its **second portable computer**, the Compaq Portable 386 (powered by an Intel 386 chip) in **1987**. It costs between \$8,000 and \$10,000 and weighs 20 pounds.

30

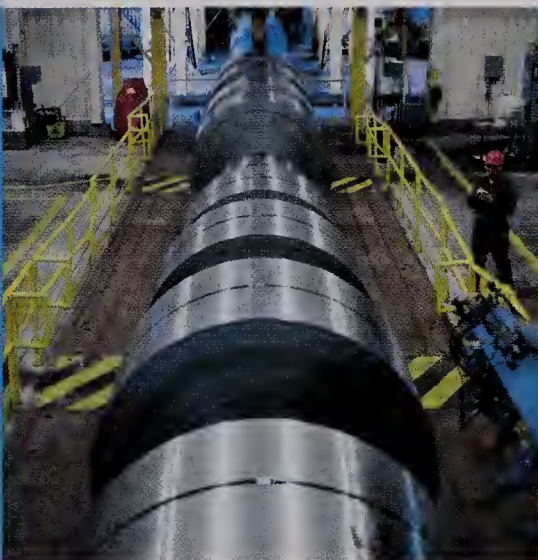
Microsoft releases its **Excel** spreadsheet in **1985**, claiming that it's the fastest spreadsheet available for the IBM PC.

Xerox, which had worked with Digital Equipment and Intel, publishes **Ethernet specifications** in **1980**. Ethernet went on to become the most widely installed LAN technology.

SOURCES: WWW.HISTORYCHANNEL.COM, WWW.WHATIS.COM, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY VIRTUAL MUSEUM, WWW.ICANN.ORG, HEWLETT-PACKARD



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When software quickly eliminates barriers between systems, that's one degree of separation. While you may have one department standardized on one platform, you'll often have another department on a different platform. And since getting everybody to switch to the same platform could cause trouble, it's your job to make everything work together. That's where Microsoft® BizTalk® Server 2002 comes in. BizTalk Server 2002 gives you a library of over 300 adapters for popular applications, technologies, and implementations like EDI using Internet standards like XML and SOAP. In short, it lets you connect all your internal and external systems quickly and cost-efficiently, and nobody gets hurt. That's one degree of separation. That's infrastructure with .NET. Find out how .NET connected software can help you eliminate the barriers between your systems. Go to microsoft.com/enterprise **Software for the Agile Business.**



and your UNIX zealots.

Dollar Rent A Car used BizTalk Server 2002 to create a new XML-based EDI interface in weeks rather than months, and the solution in turn reduced the development time required for connecting to each new business partner by 75 percent. The BizTalk Server implementation also helped the company to significantly reduce transaction costs with its partners.



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Jerry Gregoire | CIO Observer

Viewing the World Without Spin

Over Bored

My idea of hell is being trapped on a boat full of vendors with no chance of escape. So how come I loved this trip so much?

THE FIRST TIME SOMEONE DESCRIBED a “CIO cruise” to me, I was sure they were joking. This is how it works. A London-based company named Richmond Events charters a giant cruise ship. The whole ship! They fill half of it up with representatives from IT vendor companies and charge them about \$20,000 per head for little cabins on the less desirable decks. Then they invite several hundred senior IT folks aboard (without their significant others), and the ship heads out to sea. In return for this “free” cruise, attendees agree to a series of private 30-minute meetings with selected vendors and carefully crafted seating assignments for each meal.

In spite of everything I’ve learned since, including actually experiencing the cruise, I still can’t even write this without shaking my head in disbelief. What kind of CIO could commit three full days, plus travel time, away from work? Why would any guy go stag on a cruise ship full of stressed out, middle-aged men? Why would any woman? And who, in their right mind, would allow themselves to be sealed into a metal container full of vendors with no chance of escape? Meaningless questions that demanded investigation.



Try as they might, my family has never been able to get me on a cruise ship. Like any compensating introvert, I burn up a lot of energy in social situations. I’m horrified by the notion of being trapped with a thousand or so strangers, forced to endure endless small talk at meals, sightseeing in slow-moving herds (get along lil’ granny). Worse, I might be forced to relax, an indulgence that brings on the guilt of sloth, bequeathed in childhood to those of us born of overachieving parents. I have since passed this annoying trait on to my own children.

But, ever mindful of your need to know, I signed on for Richmond Events’ CIO Forum Financial Services cruise on the *Queen Elizabeth 2* out of New York City this past May. I’ll skip right to the end and tell you that the conference was terrible; and it was, by far, the best conference I’ve ever been to.

Let me briefly explain why it was terrible so that I can get to the more interesting stuff. First, like every conference I’ve ever

ILLUSTRATION BY PETER FERGUSON

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been to, most of the speeches, presentations and panel discussions, including the one I moderated, were pretty thin gruel—a shadow of what you might expect to get from research papers or the more serious articles in this magazine. Predictably, they included all of the serial posturings of your average conference sessions—the sycophantic introductions, the flattering references, the show-time antics of the professional radicals and the ever-present pronunciamentos of the token credentialed experts. The few good presentations were too truncated for time to be valuable, except as a recommendation for further research.

The cruise was less of a cruise and more of a drift (not that it mattered, since we had nowhere to go).

Second, the cruise was less of a cruise and more of a drift (not that it mattered, since we had nowhere to go). We left New York City at about 8 in the evening and were heading south when everyone retired for the night. The next morning, and for the remainder of the conference, we were stopped just off the East Coast, well within sight of the Atlantic City casinos. (I'm glad this wasn't the first thing my immigrant ancestors saw of America because they probably would have gone straight back to France.) As a result, at almost any time of the day or night, there were several dozen people standing out on the sundeck talking on their cell phones. This was quite surprising really. I would have thought that parking the ship far enough offshore to make sure that cell phones didn't work would have helped keep the attendees' attention. Wasn't that the point? Instead, we were just another hotel in New Jersey, which happened to be surrounded by a big moat.

Finally, for a CIO cruise—an event billed as a great networking opportunity—there weren't a hell of a lot of CIOs among the delegates. As near as I could tell, most of the crowd were second-in-commands or senior-level technology folks. This was most apparent the second night during an awards ceremony to honor those chosen as Top Financial IT Executives. The fact that there were 23 winners seemed a little odd, that the number closely matched the number of bonafide CIOs on the attendee list, surely, a coincidence, but the giveaway was that many awards had to be accepted by someone other than the award winner.

But enough of that, now for the good stuff.

Let's begin with the venue. The *QE2* was terrific, and it was a thrill to have a chance to see it in action. The ship has transported heads of state, famous scientists and movie stars. It is extremely well maintained, the food was good (although dinner was served too fashionably late for me), the service was impeccable and very British, and they sold Cuban cigars in the bar.

Richmond Events did a great job putting on the event. Ses-

sions, meals and other gatherings began and ended on time, logistics were seamless, conference materials were complete and helpful, and every one of the Richmond folks I came into contact with seemed genuinely glad to be there.

Then, about the end of the second day, it dawned on me that just about everybody at the conference was glad to be there, even, for the first time in my life, me. Now why should that be? The conference content wasn't any better than normal, the *QE2* ranks only about as well as any good conference hotel (a little worse if you consider there's no opportunity for golf),

and there are salespeople everywhere.

The answer, it seemed to me, was that we were on a ship, and you knew that everyone on board was part of the conference, there for the same reasons you were and easily approachable.

While all conferences are most valuable for their networking opportunities, networking can be tough sometimes. Delegates come late and leave early, conference hotels often host more than one event at a time, and you're not always sure who you are striking up a conversation with. Event seating is often left to chance, and running into the people you really want to meet is a matter of luck. To make networking easier on a ship of several hundred delegates, the Richmond folks operated a very efficient "paper-based" (gasp) note-passing system that allowed everyone on board to quickly contact and arrange informal meetings with anyone else on board. Ingenious. Networking, accessibility and (if you'll excuse the pun) a kind of "we're all in the same boat" camaraderie had made the whole of this conference greater than the sum of the parts.

I know lots of people who are so extroverted they can talk to an empty elevator. They'll read this and have no idea what I'm talking about. But many of the most successful, influential people in this industry suffer the same affliction I do. One of these days, I'll attend a conference whose content is so well done, so compelling, that it will make these other, softer, aspects seem silly by comparison. But since that's never happened, conference coordinators, including ones responsible for intracompany events, would do well to look at the Richmond model.

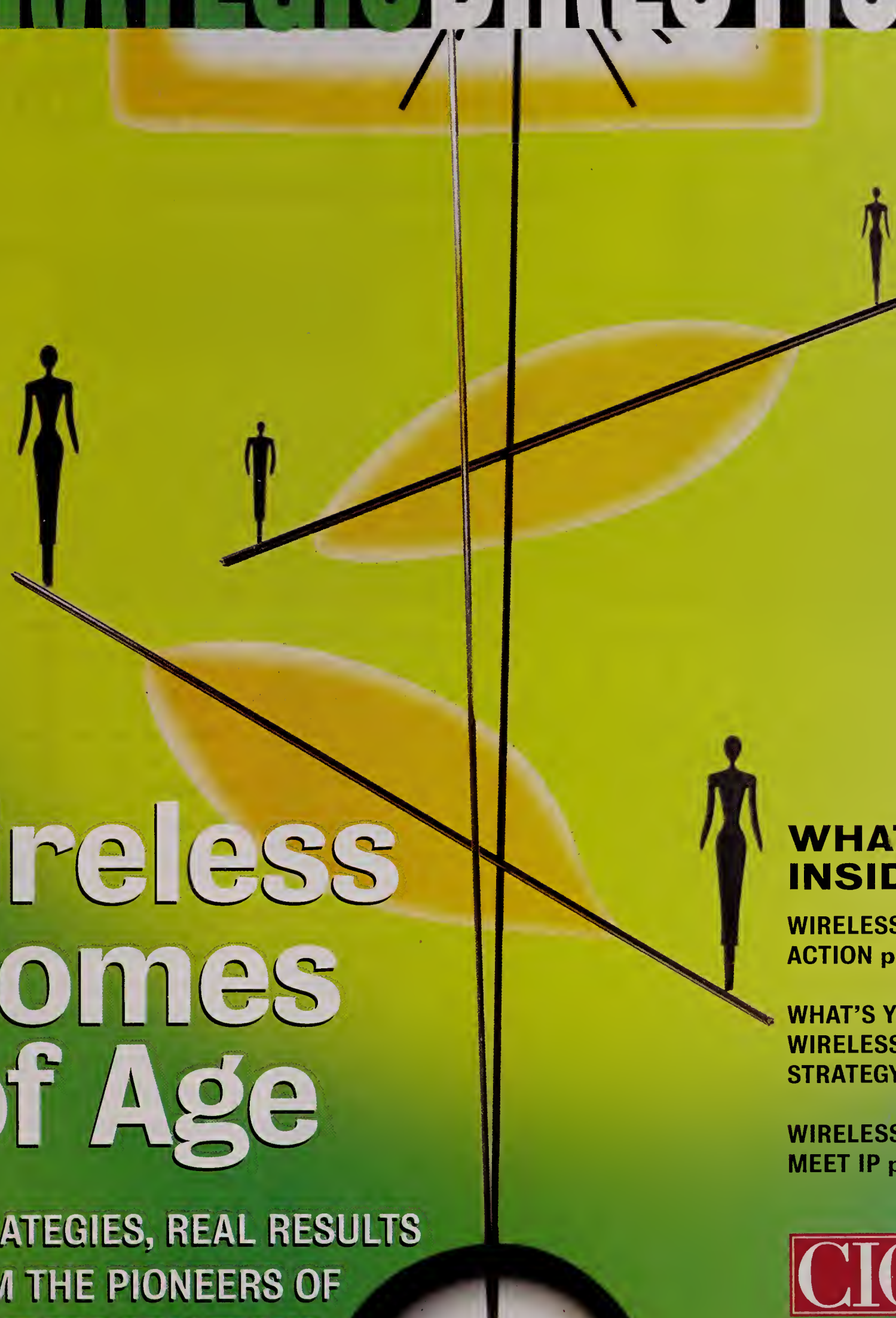
The morning of the last day, I stood on the sundeck with several dozen of my fellow attendees as we cruised back into New York harbor. It was a cool, overcast morning that made the water as slate gray as the buildings. The Statue of Liberty slid by, then Ellis Island, then Ground Zero. Emotional overload at the closing of an IT conference. Who would have thought that possible. **CIO**

Editor at Large Jerry Gregoire is a former CIO at Dell Computer and Pepsi Cola. Share your conference-going triumphs and traumas with him at jgregoire@cio.com.



PHOTO BY STEVE RAWLS

STRATEGIC DIRECTIONS

An abstract graphic featuring a yellow background with a large, stylized yellow oval. A black line runs diagonally across the oval, and a vertical black line runs through the center. Four black silhouettes of people are positioned along the diagonal line, appearing to walk towards the top right. The overall composition suggests a journey or a path forward.

Wireless Comes of Age

REAL STRATEGIES, REAL RESULTS
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WHAT'S INSIDE:

WIRELESS IN ACTION p.3

WHAT'S YOUR WIRELESS STRATEGY? p.8

WIRELESS APPS MEET IP p.14



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WIRELESS IN ACTION: REAL APPS, REAL RESULTS

UNABLE TO WAIT FOR STANDARDS, WIRELESS PIONEERS ARE WINNING EARLY VICTORIES

Forget the future. Consider now:

No fewer than 130 million cellphones are currently tucked away in U.S. pockets, purses and briefcases—or, more likely, glommed to their owners' ears. By 2006, predicts the Carmel Group, 1.6 billion cellphones will be in use worldwide, more than the number of landline phones.

Two-thirds of managers currently work out of the office for at least one week out of every month, according to research sponsored by Fujitsu Services. And analysts at Insight Research estimate that roughly 48 million workers—truck drivers, insurance claims adjusters, business consultants, lawyers and realtors—now have jobs requiring them to spend time out of the office.

By 2003, according to Gartner Group, 35 percent of all knowledge workers will use three or more computing or communications devices to do their jobs.

Not that the promise of wireless applications is news. Nor is the sobering reality that no true wireless standards have yet emerged in the U.S. to help CIOs build solid, scaleable strategies. But who can wait for standards when ever-mobile employees are clearly embracing wireless solutions—with or without IT support?

Jan Dehesh, vice president of enterprise marketing at Qualcomm, the San Diego-based wireless solutions vendor,

says mobile workers aren't going wireless just for fun; it's of necessity. "Even though most of us have cellphones, the reality is that most folks get more e-mail than they do voice-mail," Dehesh says. "Yet we're supposed to do more with less. Whether it's the sales and marketing teams, or whoever is out there traveling, we're all expected to stay in touch and get our reports in on time, but be out on

the road, too. And how exactly is that going to happen? Not with a cellphone."

So, despite the limited coverage, pricing that some see as too high, and struggles with interoperability, many CIOs must proceed with wireless strategies—or risk being left behind by the employees they're trying to support.

Dehesh says CIOs should view wireless less as a challenge, more as an

INCHING TOWARD 3G

You've heard about the significantly faster digital capabilities promised by 3G (third-generation) wireless services—with speeds ranging from 100 kbps to a theoretical 2 mbps. And the good news is these 3G solutions are arriving.

In the U.S., Verizon has debuted its 3G Express Network, basing the service on Qualcomm's CDMA (Code-Division Multiple Access) standard. Cingular Wireless is planning to deploy Nortel Networks' EDGE (Enhanced Data Rates for GSM Evolution) gear to deliver 3G packet data up to three times faster than its current 2G GPRS (General Packet Radio Service) service. And VoiceStream is evolving into T-Mobile, the first carrier to deliver wireless services in both North America and overseas using a single technology, GSM (Global System for Mobile Communications), which will evolve into GPRS, and a single brand name.

Packet-based wireless services—such as CDPD (Cellular Digital Packet Data) and Mobitex from Ericsson—have been around for a while and have facilitated innovative applications, but these will eventually be upstaged by newer standards, notably CDMA 20001X and GPRS.

These standards are not compatible, but recently the six largest wireless carriers have agreed to participate in a program that allows their customers to send text messages to those using other carriers' services.

However, which 3G standard will prevail is by no means obvious. Industry watchers expect a patchwork for some time to come, especially since economic conditions have crimped operators' plans.

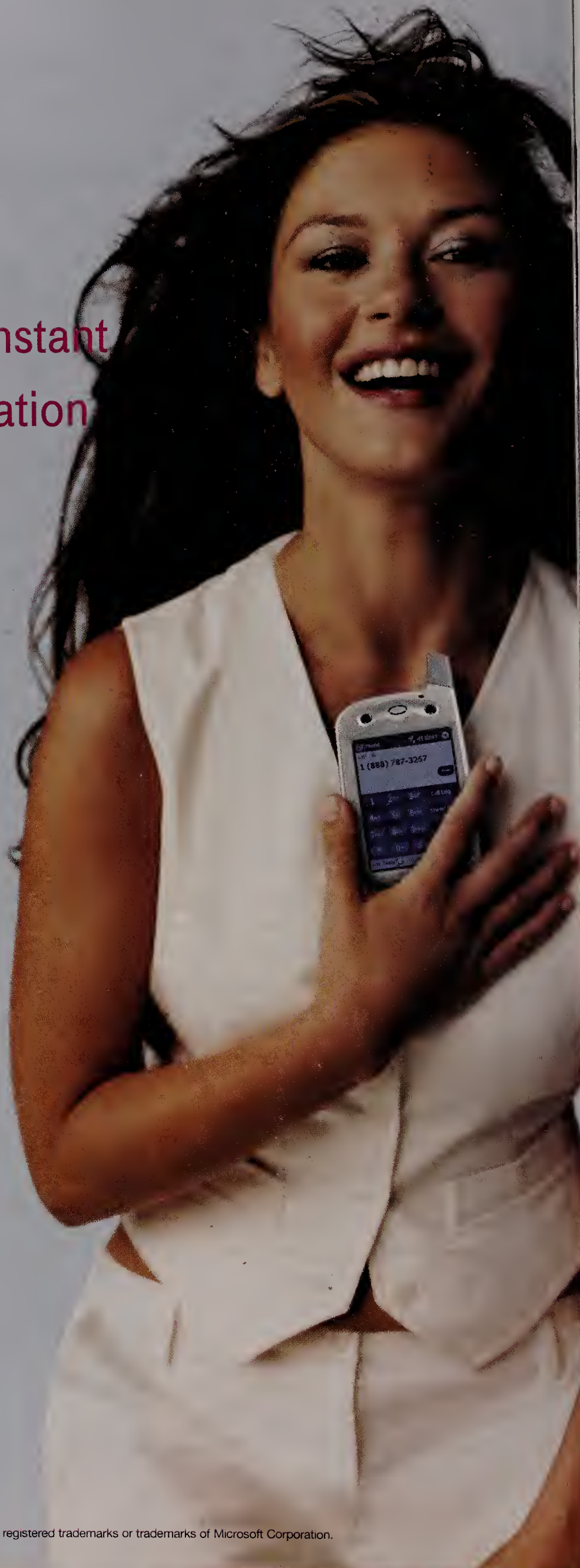
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Yeah, instant
gratification
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isn't it?



opportunity. "Just think of the productivity to be gained by enabling e-mail, contact and calendar wirelessly and reliably at speeds above what people experience using dial-up."

AND THE GOOD NEWS IS: There are now some wireless ROI cases to examine. Following are real-life examples of wireless pioneers, both in the U.S. and globally, that have found ways to make wireless pay off.

BETTER MILEAGE IN TRANSPORTATION: After landscape equipment maker Toro implemented Qualcomm's satellite-based OmniTRACS mobile information management system (including wireless data terminals in each truck, as well as a vehicle location system and fleet management software), the Bloomington, Minn.-based company hiked its hauling capacity by 40 percent using the same equipment. Per-mile costs are down, too—a savings the firm shares with the drivers of its 34-truck fleet. And for the first time, Toro can track delivery times. On-time delivery now consistently averages 97 percent, boosting customer service.

IMPROVEMENTS IN THE FIELD: Using off-the-shelf field service software and handheld PCs running Microsoft Windows CE, EMCOR Group's Mesa Energy Systems has improved the productivity of its 70 field technicians by 20 percent. And customer service is so much better that the Irvine, Calif.-based HVAC services company anticipates a return on its investment in less than a year.

Before turning to Cingular for wireless solutions, field technicians at Illinois Power first drove to their field offices to get printed work orders. Cellphones and one-way pagers kept the technicians apprised of new assignments. Now, however, data moves directly between technicians' vehicles and the company's call center, improving the information they get and allowing Illinois power to tell

customers more precisely when a technician will arrive.

HEALTHCARE CONNECTIONS: Not so long ago, Boston-based Concentra Networks' small army of occupational health specialists visited hospitals, companies and patients daily and then spent two or three hours documenting the status of

each case. The firm has eased that burden by giving each field case manager a Compaq iPAQ handheld loaded with a professional services automation application from Changepoint. Now patient information is transferred straight into the company's billing system after each appointment, eliminating the need to

DEVICES AND DESIRES

Most wireless devices today have limited capabilities, which is why mobile workers often use several of them to get their jobs done:

- Cellphones increasingly include web browsers, but lack the functionality and memory to run customized applications.
- PDAs (personal digital assistants), originally lacking any communications capability, are getting connectivity, but generally not to corporate networks.
- E-mail devices have surfaced in response to demand, but typically don't include other functions, like voice.

But that's changing. International Data Corp. forecasts that by 2005 nearly one-third of handhelds will include integrated wireless networking—usually either Bluetooth short-range capability or wi-fi (wireless local area networking).

Newly-announced PDAs, for instance, integrate phone, SMS (short messaging services), web browser and organizer. Microsoft's Pocket PC comes with Windows Terminal Server and SMS, and new tablet computers typically include wi-fi or Bluetooth connectivity.

It adds up fast. In just a couple of years, expects Gartner, enterprises will be forced to support as many as 50 different kinds of wireless device.

WHAT'S A CIO TO DO?

Decide on the apps you'll support and limit device support accordingly. And then develop a way to keep track of them. Options include:

- Mobile device management software helps administrators deal with key tasks across platforms, including distribution of software and files, execution of customized scripts, and collection of inventory data;
- PIM (personal information manager) synchronization platforms allow enterprises to bring business apps like e-mail and address books to mobile units;
- Mobile asset management products enable remotely managing and changing authorization schemes (e.g., passwords), locating and locking down lost and stolen devices in order to prevent unauthorized access to data or deleting data on lost units, and determining device status and upgrading its software.

WIRELESS COMES OF AGE | WIRELESS IN ACTION

key in data and liberating field staff from evenings of tedium.

LONGER ARMS OF THE LAW: When Kelley Drye & Warren's 350-plus attorneys began spending increasing amounts of time out of the law firm's several U.S. and international offices, they carried laptops and had to waste time searching out landlines in order to plug in and check e-mail or link to contact and calendar functions. That changed when the firm implemented Cingular's Corporate E-mail PLUS service. These days the attorneys use a Research in Motion BlackBerry

wireless handheld that integrates wireless enterprise e-mail and organizer software, enabling them to send and receive encrypted e-mail and access contacts, calendar and task functions.

GLOBAL TEXT MESSAGING SOLUTIONS: Every digital phone sold in the U.S. offers text messaging capabilities, which American companies are only just learning to exploit. Globally, however, 1 billion text messages are sent every day around the world. Europeans lead the way with these examples:

Rather than cutting paychecks,

one European company sends text messages to employees to confirm their paychecks have been deposited. Each message includes a URL linking to the employee's bank account so he or she can view the balance;

A BMW dealer uses text messaging rather than voice calls to schedule service appointments and get authorization to proceed with necessary work;

Cadbury asked buyers of its candy bars to send a text message to a phone number printed on the wrapper and got four million responses in six weeks. **SD**

COMPANY PROFILE

WIRELESS DATA HELPS HONEYWELL ELIMINATE PAPERWORK, SHORTEN RESPONSE TIME AND IMPROVE SERVICE EFFICIENCY



As a world leader in advanced controls technology, Honeywell engineers and installs a broad range of environmental and lifesaving systems. The job of servicing these systems falls to Honeywell's Service Management Systems group, comprising more than 1,470 field service technicians across the United States and Canada.

Traditionally, Honeywell's customer service process has generated as many as 20,000 documents in a day. Service technicians had to call Honeywell's service response center for all customer and systems information, which they then wrote down. After the service call, the technician filled out lengthy paperwork and a timesheet. At the end of the week, the information was keyed into a database. This was a tedious, labor-intensive process that often caused customer billing to be delayed. And it took time away from what Honeywell considers to be the most vital part of service—preventive maintenance. By eliminating paperwork and telephone time, Honeywell could spend more time improving the operating efficiency of customers' equipment.

REDUCING COSTS, IMPROVING COMMUNICATION

Cingular Wireless provided Honeywell's field technicians with a better mobile solution: a lightweight, handheld wireless device operating on a Windows CE platform and running over the Cingular Data Network. With a

wireless solution in hand, Honeywell will now be able to automate most office service functions. The system enhances two-way communication between Honeywell and the field. When the service call is complete, the technician simply files an electronic service report. All service information is transmitted directly from the field to Honeywell's main database without having to be edited or re-keyed.

"The Cingular solution helps our technicians be more effective. Because they spend less time on paperwork and on the phone, they have more time to spend on preventive maintenance. That reduces emergencies, which ultimately reduces our costs," reports Paul Danielson, North American Project Manager, Honeywell Service Management Systems.

As well as increasing productivity and back-end efficiency, the wireless solution greatly speeds up billing. In addition, it arms service technicians with more information about the customer and the customer's equipment, including the details of the service contract. This translates into more responsive service for Honeywell's customers—and more uptime for their equipment.

Building on the success of its wireless system, Honeywell plans to provide its customers with Web access to the field data sent back over the Cingular Data Network.



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WIRELESS

What do you have to say?[™]

WIRELESS COMES OF AGE | WHAT'S YOUR WIRELESS STRATEGY?

WHAT'S YOUR WIRELESS STRATEGY?

WITHOUT A GOOD PLAN, YOU CAN GET HOPELESSLY ENTANGLED IN WIRELESS OPTIONS

“Wireless for wireless’ sake is never a good decision,” says Paul Mueller, vice president of technology services at Schneider National, Inc., a leading provider of premium truckload and intermodal services. But there are many business processes in many industries that could benefit the same way Schneider has benefited from the deployment of wireless communications. “Anywhere there’s time-critical information and/or a significant mobile workforce there will be a return on investment,” Mueller says.

The trick is to think strategically.

“It’s smart to have a corporate wireless communications strategy,” Mueller notes, “just to ensure that wireless technology does not take on a life of its own in a very unstructured manner.”

IT STARTS WITH THE BUSINESS

Start by dovetailing the particular demands, pain points and objectives of your business with the requirements and limitations imposed by your enterprise IT infrastructure and architecture.

Take New York-based retailer Limited Brands:

“Our current strategy for wireless technologies is to focus on two areas,”

says Ted Meisky, manager, advanced technology group for Limited technology services. “We’ll be building wireless infrastructure in specific stores to enable flexible, dynamic store layouts and increase the opportunity for customer contact. Also, regional and district store managers are using wireless communication to access home office systems.”

The key elements for Limited are 2.5G and eventually 3G cellular modems and 802.11b and 802.11a wireless LAN systems. The in-store systems will have a mix of wireless registers and wireless phones, as well as handheld line-busting and inventory management devices, Meisky says. “Eventually, we envision using wireless technologies to enable efficient real-time communication between our home office and foreign factories.”

SPEEDBUMPS IN THE ROAD TO WIRELESS

Be careful what you wish for: It can blind you to show-stopping problems.

Ken Pasley, director of worldwide wireless development at FedEx Services, Memphis, Tenn., offers an example.

“Sometimes,” he says, “it appears that wireless will be the answer to all your issues when, in fact, it’s not. That’s certainly been the case in our industry.” A good example of this is

an airport tarmac. Since in most cases running cable out to the tarmac is not practical, it would seem reasonable to see wireless as the solution. “But until you look hard at what the application is, you don’t really know if wireless is the right choice,” Pasley says. If you’ve got a tremendous amount of information that you need to carry in a PC, the very bandwidth characteristics of wireless will make that difficult to do. “So you need to be very sensitive to the application you’re running, making certain that it’s designed for the technology we have available today and asking questions upfront about the amount of interaction and data traffic you’ll expect,” he says.

Bleed-over is another issue. While not as bad as in the old wireless days, it’s still with us in cellphones and radios. “We want to make sure bleed-over doesn’t occur, so we need to make certain that the frequencies being used are correct,” Pasley says. “At FedEx, we’re vigilant about the overuse of bandwidth and equipment compatibility.”

To avoid these kinds of problems, Pasley suggests establishing a management function that oversees both the design of the wireless network as well as the coordination of applications in all of the different groups using the wireless infrastructure.

WIRELESS COMES OF AGE | WHAT'S YOUR WIRELESS STRATEGY?

CHECK THOSE VENDOR REFERENCES

When it comes to software, experienced hands suggest asking for a prototype of any application you want to take wireless as a proof of concept. And beware extended application development timeframes—especially when accompanied by high services costs, which may signal a vendor that's pioneering on your tab. This can mean that development costs as well as ongoing maintenance expenses will be difficult to control.

Finally, make sure the vendors you choose—as well as their customers—are stable and decently funded. Are the vendor's customers happy with the product itself and with the vendor's support?

“THERE'S NO DOUBT IN MY MIND THAT WIRELESS DELIVERS A DEFINITE ROI.”

— PAUL MUELLER, VICE PRESIDENT OF TECHNOLOGY SERVICES,
SCHNEIDER NATIONAL, INC.

STEPS TOWARD ROLLOUT

Cingular suggests a multi-step path to strategic wireless implementations.

Start with a needs and gap analysis. Undertake a thorough operational analysis of your enterprise: Where is it now and where does it need to go to meet objectives that boost shareholder value? This is the context in which wireless technology can be strategically deployed. To figure out where wireless makes sense, ask these questions:

- Is information on which a job function depends time-sensitive?
- Can a wireless implementation improve productivity and/or lower operational costs?
- Will it increase customer satisfaction?

Do a feasibility study and ROI analysis. You'll need to know details about the financial impacts of using wireless data along with or instead of existing technologies. Take a look at internal costs (including current com-

CASE STUDY

INNOVATIVE DIGITAL WIRELESS COMMUNICATIONS PRODUCTS AND SERVICES

Q

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WIRELESS COMES OF AGE | WHAT'S YOUR WIRELESS STRATEGY?

SCHNEIDER NATIONAL —WHEN A WIRELESS STRATEGY WORKS

"Ours is an industry of service metrics," explains Paul Mueller, vice president of technology services at Schneider National, a leading provider of premium truckload and intermodal services. "On-time delivery to our customers is absolutely essential. As an organization, we've committed to this for our customers since Day One." Moreover, Schneider has to be a low-cost, high-value operation. Which means all of the company's key operating metrics are negatively impacted when a driver stops and takes time to get information.

Thus in 1988 Schneider National became Qualcomm's satellite communications technology customer and now has units—about 14,000—in every tractor it has on the road. Since then, wireless technology has become thoroughly integrated into its business processes. Among the examples:

Dispatch—"We've incorporated wireless directly into the dispatch process for our drivers and vehicles," Mueller says. "In most cases, the information regarding load pick-up and delivery instructions is sent programmatically from our dispatch systems to the driver sitting in the tractor of the truck."

Load Cycle—Wireless communication continues throughout the various stages of the load cycle. From initial dispatch, picking up a load at a shipper, resolving an in-transit issue, re-directing a load, updating an estimated time of arrival, to reporting and updating delivery information, the driver can send information back to Schneider over the wireless link. All of these types of transportation process transactions occur without necessarily having verbal or voice communications with the driver.

The benefits? "We can handle more loads for our customers and drive more miles," says Mueller. "We've seen a greater return on our assets as well as better income for our drivers. All of our business processes have been impacted by our use of wireless technology."

With experience, the company has found more ways to integrate wireless into its business. "We knew that we

could send dispatch messages and get information back from our drivers," says Mueller. "Over time, we found additional ways to obtain vehicle statistics." For example, Schneider collects information directly from the engines in the vehicles themselves, stores it and then communicates it wirelessly as input to maintenance operations to help manage vehicle performance. "Creativity takes over as you see how you can optimize business systems and process using wireless," Mueller says.

Of course, there are challenges, too, like coping with the need for complete coverage, even in rural areas. A number of wireless technologies, from cellular to specialized mobile radio, work very effectively in metropolitan areas, Mueller notes, but there are a lot of places a long-haul North American truckload fleet has to go that are simply not in the coverage footprint for wireless service. That's one of the reasons satellite communications has been the communications technology of choice for Schneider. "We can send one of our vehicles anywhere in the 48 states, Canada and Mexico, and our service provider has a coverage footprint," Mueller says.

The lack of cellular technology standards concerns Mueller as his team works on developing a wireless tracking technology for the company's trailers.

"Cellular would be a less expensive option than satellite," Mueller says, "but I think North America is going to be a patchwork of potentially competing cellular technologies; what does that mean for a customer with North American mobile operations?"

In the short run, it means reverting to analog cellular to get ubiquitous coverage.

"If we need good geographic coverage and it's going to be terrestrial wireless coverage, then we'll have to rely on multi-mode devices," says Mueller, "but there's a cost premium associated with these. Otherwise, there are certainly some satellite coverage and capability opportunities that make sense. For us, satellite is still clearly an option."

WIRELESS COMES OF AGE | WHAT'S YOUR WIRELESS STRATEGY?

munications outlays), construct a comprehensive wireless implementation cost scenario and develop a return-on-investment analysis.

Get senior execs to buy in. This is key to getting your wireless initiative funded and ensuring employees are motivated to make it succeed.

Craft a management plan. How will your wireless project be managed? You'll need to decide whether you've got sufficient internal resources or whether it makes sense to outsource all or part of the effort. You'll also need to establish accountability and determine the milestones and metrics through which progress can be tracked.

"SOMETIMES IT APPEARS THAT WIRELESS WILL BE THE ANSWER TO ALL YOUR ISSUES WHEN, IN FACT, IT'S NOT."

— **KEN PASLEY, DIRECTOR OF WORLDWIDE WIRELESS DEVELOPMENT, FEDEX SERVICES**

Build an interdisciplinary project team. Members should include appropriate technology staffers as well as finance, operations and line-of-business managers to be affected by the implementation. Their varying perspectives will help solve problems and generate benefits not initially recognized.

Choose your vendors carefully. You'll likely need network providers,

hardware platform providers and software/application providers. Generally, network providers get selected first because this choice determines coverage. Hardware is often chosen next, since the needs of affected job functions can direct the decision. Driving selection of software is the need for a consistent look and feel to the applications across various hardware platforms.

CASE STUDY

VOICESTREAM BECOMES T-MOBILE

In July, T-Mobile launched its all-digital wireless voice, messaging and data services to customers in California and Nevada. This marks the beginning of a transition of the VoiceStream brand to T-Mobile, which is the wireless subsidiary of Deutsche Telekom.

T-Mobile is the first company to offer wireless service on both sides of the Atlantic with a single global brand name and a single digital technology standard, GSM (Global System for Mobile Communications). By the end of the year, T-Mobile will deliver services in 45 of the top 50 U.S. markets. T-Mobile US and its affiliates own licenses to provide service to 95 percent of the U.S. population.

T-Mobile US is the only national carrier to operate a nationally ubiquitous GSM network across its entire footprint. The most widely used wireless technology standard in the world, GSM accounts for more than 70 percent of the worldwide digital wireless telephone market. T-Mobile has international roaming agreements with more than 185 of the major operators worldwide, enabling mobile professionals to use one number, one phone, when traveling to over 90 countries around the globe.

GSM's digital technology and use of "smart cards" delivers integrated voice, high-speed data, fax, paging and short message service capabilities.

With fully digitally-encrypted wireless communications, voice and data, calls are kept private and confidential.

The T-Mobile Smart Card, which comes with the T-Mobile phone wireless device, encodes every voice and data transmission. Each time a T-Mobile phone device is turned on, information on the T-Mobile Smart Card is checked to ensure that the card is genuine. The PIN stored on the smart card prevents the use of stolen or lost cards or phone devices.

T-Mobile®

An extension of GSM, GPRS (General Packet Radio Services), provides wireless Internet access at speeds that rival or exceed standard wired dial-up offerings. T-Mobile offers a complete portfolio of GPRS-enabled products, including phones, PC Data Cards, the Windows Powered Pocket PC Phone Edition, and the RIM BlackBerry Handheld with integrated phone allowing data connectivity at speeds up to 56 kbps.

Additionally, T-Mobile US operates a wi-fi wireless broadband (wi-fi802.11b) network in hundreds of public locations across the country, including airports, airline clubs and select Starbucks coffeehouses, providing ultra-high-speed wireless access to the Internet using wi-fi-enabled laptops and PDAs.

For more information, visit www.t-mobile.com

WIRELESS COMES OF AGE | WHAT'S YOUR WIRELESS STRATEGY?

SECURITY POLICY— DON'T FORGET WIRELESS

Worried about those lost BlackBerrys, Palm Pilots, PDAs and laptops left behind in hotel rooms and airplane seats? It's just one of the security issues emerging from increasing employee mobility. Fortunately, many wireless security issues can be handled within the scope of an enterprise-wide security policy.

If your business has significant numbers of mobile workers, for instance, your security policy should probably require frequently-changed passwords and access numbers. You can also create a policy that automatically rejects "easy" passwords. And it may be worthwhile to impose stronger authentication requirements, such as digital certificates or secure tokens and/or smart cards that plug into devices and dynamically generate new passwords at each log-in.

Another concern is the security of the wireless links themselves. Attackers regularly break into cellphones, PDAs and pagers, sometimes by "war-driving" around corporate campuses and hotspots with equipment that intercepts wireless transmissions. So you'll need to decide: can the data moving between your wireless device be left unencrypted, does it require SSL (secure sockets layer), or should you opt for a virtual private network?

Depending on your business, you may need to meet regulatory requirements for privacy and confidentiality. The federal government's Health Insurance Portability and Accountability Act (HIPAA), for example, imposes security on electronic transmissions of medical information.

Wireless security standards are in flux. Many wireless local area networks (WLANs) have virtually no security features. And the Wired Equivalency Protocol (WEP) is, according to Ian Keene, vice president of telecom strategies at Gartner, "not adequate for business use."

Even worse, he says, "a lot of enterprise WLANs don't even have the WEP feature activated. CIOs should insist on the use of a VPN."

The good news?

"Products supporting the 802.11i standard should be available by the beginning of 2003 to provide standards-based encryption and authentication. In the meantime there are proprietary solutions available from equipment vendors," says Keene.

Develop an implementation plan and a rollout schedule. To get a handle on the multitude of variables that need to be tracked during rollout, ask and answer:

- How can disruptions be minimized during implementation?
- What guarantees do we have for equipment delivery?
- How long will it take to build applications?
- How long will third-party application developers and/or internal staff need to load software into the hardware?

Pick out a pilot site. You'll want a pilot environment that supports a proportional amount of traffic and runs the broad array of applications to be supported by the full-throttle wireless system you're implementing.

Conduct the rollout and finalize management. As rollout begins, you should have a critical mass of players with a vested interest in the initiative. The management team must have systems in place to get feedback on problems and a rapid-response process to promptly resolve issues. Schedule ongoing strategic meetings to explore new ways to leverage technology, business processes and human resources to improve service to customers, elevate employee morale and return value to shareholders.

Done right, wireless implementations clearly can be worth the effort.

"There's no doubt in my mind that wireless delivers a definite ROI," says Schneider National's Mueller. "We had a targeted application, focused at some of our key business processes, and we understood the potential changes to business processes from its implementation. Adopting wireless technology has resulted in one of the most significant efficiency gains that we've had." **SD**

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WIRELESS COMES OF AGE | WIRELESS APPS MEET IP

WIRELESS APPS MEET IP

TODAY'S INTERNET INFRASTRUCTURE IS TOMORROW'S WIRELESS BACKBONE

Richard Ricks, CIO at Nortel Networks, says the future of wireless networking will be based on the Internet Protocol. "It's essential that CIOs migrate their enterprise infrastructure from circuit-switched technologies to the data-centric IP network model that will support the high-bandwidth demand of emerging data applications," Ricks says.

Compared to earlier-generation environments based on proprietary wireless environments, wireless IP offers substantial payoffs.

"Packet switching will drive down the cost of data transmission, increase bandwidth capacity, and improve data speeds," Ricks maintains. "These increased speeds will pave the way for more intuitive applications and create a more positive user experience overall."

Here's a for-instance: FedEx operates wireless portals accessible from any web-enabled wireless device, among them Pocket PCs, PDAs, RIM pagers and WAP (Wireless Access Protocol) phones. And the portals pay: each of the more than 600,000 daily phone calls FedEx fields costs around

\$2.14—but the cost of each electronic tracking is just 10 cents.

"In today's dynamic marketplace where business success is linked to customer responsiveness and employee collaboration, the utilization of wireless technology will have a large impact on a company's future success," observes Eric Schultz, chairman and CEO of Wireless Knowledge, a Qualcomm company providing wireless gateways.

It's crucial, Schultz says, to leverage standard IP protocols to ensure connectivity across a wide variety of wireless networks. IP-based connectivity can tie into pre-existing security policies, thus highlighting the importance of investing in a wireless carrier that has a long-term strategy for increased coverage and data throughput capacity. For many applications, the user model must embrace what he calls "occasionally connected" computing since users will often be fully disconnected or out of coverage and will need to work locally on the devices. "This means that applications need to work seamlessly whether connected to information on the network, or working from information synchronized to the device," Schultz says.

Nortel's Ricks advises CIOs to work toward deploying the most cost-effective wireless network possible. "This means making the most of your existing legacy equipment investments and implementing networking efficiencies that can be achieved by combining optical, IP and wireless access technologies," Ricks says. "These strategies can significantly drive down capital investments and operating costs to enable businesses to be more profitable."

Wireless carriers and their equipment providers understand this and have started fielding appropriate products and services:

Cingular offers several services: Interactive Messaging PLUS combines interactive messaging with Internet e-mail and, optionally, will manage them. Wireless Internet services add line-of-business apps. There's a BlackBerry edition, too.

AT&T Wireless customers can buy both BlackBerry handhelds and AT&T Wireless' BlackBerry Enterprise Server, which will support up to 20 users. The company's Office Online offering, installed on a desktop computer (without requiring help from an IT department), redirects Microsoft Outlook and Lotus Notes so users can access

WIRELESS COMES OF AGE | WIRELESS APPS MEET IP

contacts and calendar information from any Internet-enabled wireless phone, handheld or laptop. And the Mobile Connection-Enterprise Edition service, managed by the buyer's IT staff and compatible with a variety of wireless devices, delivers a direct high-speed connection to corporate e-mail, the Internet and other web-based apps.

Nortel's Intelligent Internet uses optical networking to provide high availability intranet/extranet, web optimization, secure connectivity, Ethernet LAN/MAN (local area networking/metro area networking) and network consolidation. Its Multimedia Messaging and Unified Messaging services permit end-users to compose, send and retrieve different types of messages from a single MMS terminal, personal computer, PDA (personal digital assistant) or legacy handset. At their heart is the Interactive Multimedia Server, a carrier-grade application server designed to run on an open computing platform and

and access technology-independent and enables location-aware browsing, transaction and settlement, storefront authentication and interfaces to fulfillment systems.

Many others are gearing up for the forthcoming wireless world, too, including major CRM vendors. SAP's mySAP Mobile Business, which works with WAP phones, allows users to be both disconnected and intermittently connected. Siebel offers a wireless version of its sales support apps and offers a suite of wireless apps that integrate with its e-business offerings.

AND NEW APPS EMERGE

"True-high-speed mobile access to the Internet provides huge new market opportunities," says Nortel's Ricks. Some can be seen already:

What do I owe? In some quarters, mobile phones are being used to pay bills.

Gartner expects that by 2005 about 27 percent of online transactions

26 percent of mobile phone revenues.

Already, Starbucks has launched services enabling customers to phone in an order and pay using SMS (short messaging service). And Food.com has partnered with Motorola to offer a mobile payment service for fast food providers. Customers use their mobile devices to select their food, collection/delivery options and method of payment.

What's BREWing. Forbes.com and SmartServ Online, Inc. are using Qualcomm's BREW (Binary Runtime Environment for Wireless) platform to offer access to financial market data—including news, stock quotes and indexes—to users of wireless devices.

BREW is also being used by Oracle. Mobile enterprise applications running on BREW-enabled devices can access enterprise data cached locally in an Oracle 9i Lite database. Client-side application data is synchronized by the Oracle 9i application server with corporate servers over-the-air or, using a cradle and BREW's distribution system, can install, recall and update the applications for mobile users.

A very thin applications environment for wireless devices, the BREW platform provides an open, standard platform for application developers that simplifies integration of apps onto a wide range of wireless devices.

"CIOs need to look at existing applications that are most prevalent with their workforce, and then look for a solution that can be easily integrated into their established systems," says Schultz of Wireless Knowledge. "By extending only those initial applications that are of the most value to their mobile employees, it'll be much easier to measure the ROI for that wireless implementation." **SD**

"IN TODAY'S DYNAMIC MARKETPLACE WHERE BUSINESS SUCCESS IS LINKED TO CUSTOMER RESPONSIVENESS AND EMPLOYEE COLLABORATION, THE UTILIZATION OF WIRELESS TECHNOLOGY WILL HAVE A LARGE IMPACT ON A COMPANY'S FUTURE SUCCESS."

— ERIC SCHULTZ, CHAIRMAN AND CEO OF WIRELESS KNOWLEDGE

enabling "anywhere" access to collaborative services—such as multimedia conferencing and screen sharing—independent of location and network type. And Nortel's mCommerce system supports high-speed, secure transactions transmitted over 2.5G and 3G services. It can be built on legacy payment systems, is device-

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The Magazine for Information Executives

Michael Schrage | Making IT Work

It's all About the Execution

Beyond Ideas

There's always a good reason for a failure but never a good reason to fail.

THERE'S NO SHORTAGE of brilliant ideas in IT. To the contrary, we enjoy an embarrassment of riches. Ever faster, better and cheaper technology creates ever faster, better and cheaper choices for both CIOs and the enterprise. Even in the grip of a capital expenditures slowdown, we still have more innovative opportunities than we know what to do with. That's the good news about this business.

The bad news? Good ideas are easy; good implementations are hard. Very hard. But ongoing IT innovation is meaningless without ongoing implementation. We can publicly discuss the pros and cons of CRM, SCM, alignment and security till our tongues get tired, but the immutable business fact remains: The quality of ideas ultimately depends on the quality of their implementation. Just as actions speak louder than words, our implementations say far more about us than our plans. We are what we execute.

So this column begins with a simple premise: The future of IT is the future of implementation; the future of implementation is the future of IT. That means implementations increasingly need to be as creative and inspiring as the ideas that supposedly drive them.

Implementations built around slavish conformance to unchanging specs almost always fail. Implementation isn't about following orders on time and on budget; it's about getting things to *work* on time and on budget.

Anything CIOs can do to gain keener insight into how individuals and institutions translate ideas into actions—and actions into ideas—is worth the investment. Why? Because, in the real world, return on investment is contingent on return on implementation.

The problem is that we overvalue good ideas and undervalue their execution. We honestly believe that if we define the problem—and the specs—just right, that implementation becomes straightforward. It almost never is. Anyone bothering to read this column has probably lived through an implementation or a rollout where they discovered that the very act of implementation changes the nature of the original problem and the spec. You discover what the clients *really* want when

they interact with a prototype, or how suppliers *really* respond to that just-in-time scheduling system. As German Gen. Helmuth von Moltke once observed, "All plans evaporate on contact with the enemy."

What many executives don't realize is that implementation is all about exploration and discovery. Unfortunately, too many of us treat implementation as a necessary evil that obscures the brilliance of our strategic IT concepts. Implementation is what gets delegated—or outsourced—to project managers and consultants who get paid to handle the dirty work.

That's a mistake. That's dangerous. We need to treat implementation more as a feature and less as a bug. There's a razor-thin line between delegating and abdicating the job of implementation, and the CIO community may be guilty of crossing it too frequently. We need to look only at the higher-profile ERP failures and misbegotten efforts at developing B2B Net-centric markets to identify this pathology.

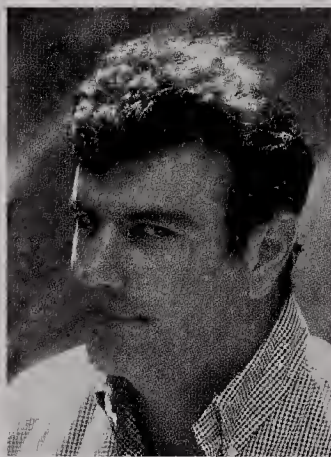
Yes, we can round up the usual clichés about how companies "failed to get buy-in from top management" or were "bamboozled by their consultants" or "misunderstood how long it would take for employees to become comfortable with change." But that, too, would miss the point. There's always a good reason for a failure, just as there's always a good reason for success.

The issues here are more fundamental: How do we integrate the way we manage implementations with the way we explore strategic and competitive advantage? Implementation is as significant a senior management responsibility as strategic direction, but most companies choose not to manage it that way. So how do we treat execution as a resource rather than as a cost?

In other words, how do we create systems and cultures where the implementation of ideas is treated as seriously and respectfully as their inception? Shockingly, there are easy answers to each and every one of those questions. Not surprisingly, the challenge is in implementing those easy answers.

If that sounds a little coy, so be it. The truth is that effective implementation is an ongoing dialogue between the (inter)action you just took and the (inter)action you think you're about to take. This is not a static process. Implementation is about introspection as much as persistence and overcoming resistance. This monthly column will be about these ideas and the people and stories behind them. After all, there are as many exciting ideas about how to effectively implement IT as there are actual ideas to implement. **CIO**

Michael Schrage is codirector of the MIT Media Lab's eMarkets Initiative and author of *Serious Play*.



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CXO Perspectives

Views from the Executive Suite

Seeing the Whole Board

Lessons in IT thought leadership

BY JACK BRENNAN

IN AN EPISODE OF the TV drama *The West Wing*, President Josiah Bartlet uses chess as an analogy for geopolitical strategy. Bartlet, locked in a global game of brinkmanship with the Chinese, observes that in both chess and foreign relations, it's dangerous to focus too narrowly when considering your next move. "You've got to see the whole board," he tells an aide.

Seeing the whole board is exactly the challenge that CEOs and CIOs face in guiding the use of business technology. In a world of seemingly unlimited technology fads but limited investment capital, it's unwise to rely on consultants to do the thinking for you. After all, they have a vested interest in creating more work for themselves. CEOs and CIOs need to develop their own sense of the future technology needs of the enterprise. And that requires vision that's tempered with discipline, a focus on value and a healthy dose of skepticism.

Here are four ways to achieve IT thought leadership, based on lessons we've learned at Vanguard.

Create a disciplined process for evaluating technology. It's easy for CEOs and CIOs to become so consumed by the day-to-day demands that the future of the business doesn't get



the formal attention it deserves. If you truly want answers to the questions Are we using the best processes? and What could we be doing with IT? you must establish a disciplined process to identify and evaluate strategic technology opportunities.

At Vanguard, our disciplined approach to technology has three key elements: 1. Senior managers devote several hours a week to major technology decisions; 2. We have a group of people dedicated exclusively to thinking about strategic technology; and 3. We tap into the perspectives of vendors and clients.

Our technology steering committee—of senior IS and business staff—serves as a high-level focus group with a business-needs perspective. We've learned that you have to invest time to let bold ideas bubble up. When we meet, it takes an hour to get through the business at hand; only then do we get to the what ifs and why nots so important to the company's future.

Our in-house R&D team approaches these what ifs from a

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CXO Perspectives

different perspective. The group is assigned to assess the potential of technology that's still two to four years away from widespread adoption. Group members scan the environment to identify technology opportunities and then pitch innovative ideas to the business areas. They expect to sell the business on just 20 percent to 25 percent of the ideas they pitch.

IT thought leaders must cast a wide net to identify oppor-

just their salespeople—to the conference table.

Focus on value. New technology ought to improve internal operations or meet client needs with new or improved products and services. At Vanguard, if a new technology doesn't add value in one or both areas, we aren't interested.

It can be tough to recognize the value of a new technology, even when it's right in your face. I remember a presentation in my first year of business school by a developer of new software called VisiCalc—a primitive spreadsheet program that predated Excel. Nobody was impressed. We couldn't imagine why anyone would need a PC-based spread-

sheet when they could do things the modern way, as we did: performing our number crunching on time-share terminals in the university's computer lab.

Sometimes the toughest question is not whether to adopt the technology but how to apply it to capture the most value. For example, at Vanguard we've adopted collaborative browsing technology that allows us to serve clients simultaneously via the Web and the phone. It's leading-edge stuff: The software lets a Vanguard phone associate take control of a caller's

The CIO should tap into the knowledge base of vendors. She must be plugged into the IT industry.

tunities for innovation. At Vanguard, we seek insights from multiple perspectives. We routinely ask the frontline people who interact with our clients, "What should we be doing differently?" We also solicit ideas from our best IT vendors—who, after all, are themselves in the business of R&D.

The CIO should tap into the knowledge base of vendors. She must be plugged into the IT industry to recommend which vendors can truly be key partners in developing a particular technology. The CIO can then bring those vendors' scientists—not

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Web browser and guide him through our website while they talk on the phone. The catch is that this is expensive technology—too expensive to use in every client interaction. The challenge for the business is in deciding when to make it available.

Be skeptical about technology hype. One could make the case that, from a client service standpoint, the investment-management industry has seen just three technology advances of magnitude during the past 20 years.

- The 800 number, which provided every household in America with easy access to direct sellers of mutual funds.
- The PC, which revolutionized companies' internal operations by giving everyone desktop access to current business information.
- The Web, which created a new channel for investment products and services, as well as a cost-effective way to provide individual investors with new educational and investment tools.

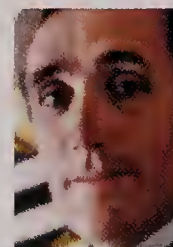
It's hard to know what the next big technological breakthrough in the investment industry could be. In my view, most of the hot technologies being touted today—including voice/portal technology and data aggregation—amount to incremental improvement. While these technologies are worth pursuing, they won't reinvent the industry. So I take a skeptical view when consultants or anyone else makes claims to the

contrary. In every industry, IT thought leaders should maintain a healthy skepticism about killer apps.

Trust your intuition. With experience, IT thought leaders develop a sixth sense for what is valuable and what isn't. Some years back, everyone said mainframe computers were passé. One of the thought leaders of Silicon Valley came to see me to reinforce the view that mainframes were dead, IBM was a dinosaur, and we should replace our mainframe computer with a multitude of servers (from his company, of course). We didn't buy his thinking because it just didn't feel right. As you know, more than a decade later, the mainframe is alive and well—a critical part of systems infrastructure, valued for its reliability in large-scale, mission-critical transaction processing.

Getting thought leadership right takes a system of checks and balances—a commitment to focus and disciplined processes, a sense of skepticism and the confidence to trust your intuition. CEOs and CIOs have to cultivate all of those traits to be able to see the whole board. **CIO**

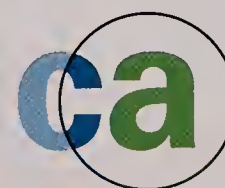
Want a CEO's perspective on a specific topic? Tell us at cxoperspectives@cio.com. Jack Brennan is chairman and CEO for The Vanguard Group in Malvern, Pa.



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Disaster recovery plans at American Express worked on Sept. 11 up to a point, “but we hadn’t contemplated losing all of Southern Manhattan,” says CIO Glen Salow, standing on Wall Street. “You have to assume a disaster is more likely to happen now, and you have to assume it’s affecting larger geographic areas.”

STAYING POWER

In the weeks and months after 9/11, three CIOs working next door to the World Trade Center found they had to be strong leaders to get their companies back online. Now back in the city, they don't make business continuity plans. They live them.

BY SARAH D. SCALET

FROM THE AMERICAN EXPRESS EXECUTIVE LIBRARY ON THE 51ST FLOOR OF 3 WORLD

Financial Center, the ferries crossing from New Jersey look like toy boats, and Manhattan seems clean and orderly. With plush leather furniture and book-lined walls, with atlases arranged on the coffee table and brass telescopes at the window, everything about the room's decor is supposed to make those who use it feel invincible.

That would be a big change from a year ago. Because of suspected structural damage to the building when the adjacent World Trade Center towers fell and because of questions about the future of the financial district, no one knew who—if anyone—might return to this room.

On Saturday, Sept. 15, 2001, American Express CIO Glen Salow stood in Jersey City, N.J., and looked across the Hudson to New York's altered skyline. It was 7 a.m., and he had just the night before returned from Minneapolis.

"It was the first time I'd physically seen what had happened, saw the horrible smoke coming up," he recalls on a day in May two weeks after he returned to his old office. "I saw our building.

Reader ROI

- ▶ Read how three Wall Street CIOs worked to get their companies back on track after Sept. 11
- ▶ Find out why Merrill Lynch's wireless bet paid off
- ▶ Check out different business continuity issues New York City CIOs are working on now

It had shrapnel sticking out of it, which if you didn't know [you] would think was actually our girders bent out. I looked at our building and said, It's only a building."

Of course, that wasn't how American Express executives acted when they staged a triumphant return to headquarters this spring, a move which should be complete by the end of this month. Step by step, Wall Street—the state of mind—is being painfully reconstructed. But Wall Street—the place—will never, can never and should never be the same.

With IPO cash dried up, investor confidence down and layoffs underway, 2001 would have been tough for financial services. Then came Sept. 11.

Thousands of people were killed. Tens of thousands more lost their jobs, and countless others had their foundations shaken. In hard dollars, the attacks on the World Trade Center cost New York City \$83 billion, according to an economic impact analysis by the New York City Partnership, cited by the General Accounting Office as the most com-

prehensive one completed.

"In a lot of comments I hear from the Street, they sort of view this past year as a lost year," says Rob Gould, a PWC Con-

sulting financial services partner, who participated in the study.

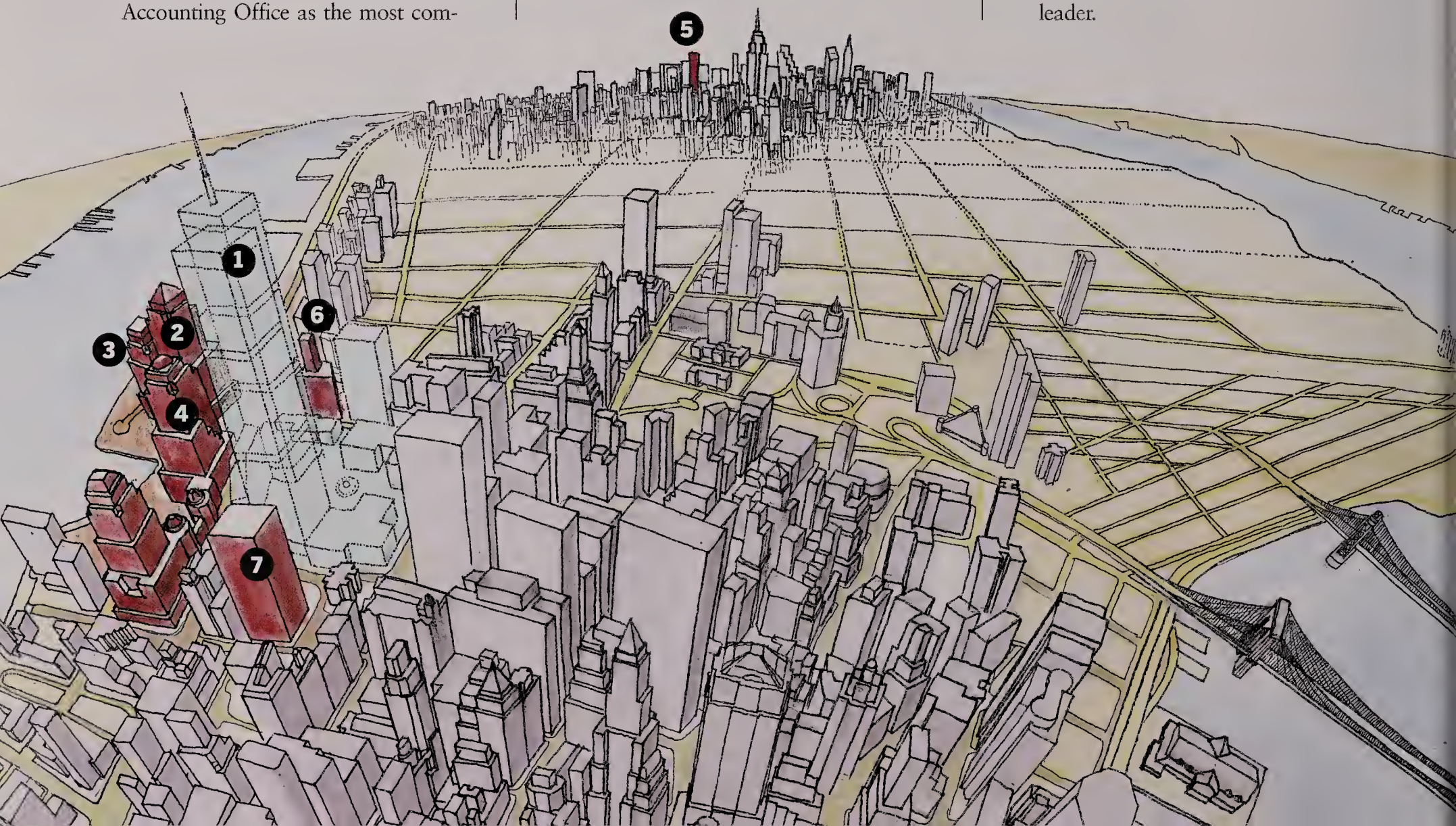
Cantor Fitzgerald, a small financial services and trading company perched atop one of the towers, came to represent the human tragedy of the attacks on the World Trade Center. But next door, three multinationals with headquarters in the World Financial Center—American Express, Lehman Brothers and Merrill Lynch—came to represent what the future of Wall Street might look like.

Two of the companies returned to Lower Manhattan; one did not. One is still recovering from 9/11, another is trying to recover an image tarnished by scandal, and another wants to project the image of a powerhouse undaunted by the disaster.

CIO sat down with the top IT executives at those companies and others to find out where they are now. What a visitor hears, time and again, is a new respect for business continuity, vendor relationships, real estate strategy and what it means to be a leader.

Where They Were, Where They Are Now

- 1 GROUND ZERO** World Trade Center site now subject to rebuilding debate.
- 2 AMERICAN EXPRESS HQ** 3 World Financial Center. Return to building will be completed this month.
- 3 MERRILL LYNCH HQ** 4 World Financial Center. 5,000 workers were back by December 2001.
- 4 ADDITIONAL MERRILL LYNCH OFFICES** 2 World Financial Center. Workers returned in February 2002.
- 5 LEHMAN BROTHERS HQ** 745 7th Ave., near Times Square. Was in 3 Financial Center. Moved uptown in October 2001.
- 6 VERIZON BUILDING** 140 West St. Telecommunications service restored this spring.
- 7 DEUTSCHE BANK** 130 Liberty St. Has not decided whether it can return.



THE LEADER THAT ROARED

“I’m not big on touchy-feely.”

—JONATHAN BEYMAN,
CIO, LEHMAN BROTHERS

When CIO Jonathan Beyman’s office was in the World Financial Center, he used to worry about having a fire in a data center. Now, from Lehman Brothers’ flashy new headquarters near Times Square, Beyman worries about how the investment banking firm would survive if—deep breath—all of Manhattan had to be evacuated.

“Our imagination is a lot more fertile these days,” says Beyman in his new, 15th floor corner office. Behind him is a panorama of other midtown skyscrapers; to his left is a poster of firefighters raising the American flag at Ground Zero.

Not that imagination necessarily would have done him any good on Sept. 11, when one of the 800 Lehman Brothers IT employees in the World Trade Center was killed, a data center was destroyed, and headquarters and the trading floors in the damaged World Financial Center were rendered useless.

“In a different world, maybe we would have had a playbook that said, here’s what you do if 6,500 people are dislocated from downtown. I probably would have forgotten to take it with me,” Beyman says. “Our ability to recover was not based on me being so smart. It was predicated on us having the environment where people knew what their jobs were and had the courage to do things that under normal circumstances, somebody would have said, What are you doing?” For instance, one person at Lehman’s Jersey City office ordered 2 million feet of Cat-5 network cabling on Sept. 11, knowing it would be precious. Quick thinking like that allowed Beyman’s staff to build a functioning trade floor within 48 hours of losing headquarters.

But don’t let the praise for employees fool you into thinking that Lehman has gone soft. “I’m not big on touchy-feely,” says Beyman, 46, who has worked for Lehman for 12 of



Wall Street companies don't have to be located in Lower Manhattan, says Lehman Brothers CIO Jonathan Beyman, standing on Broadway. Lehman moved from offices near the World Trade Center to a building near Times Square last October.

the past 16 years. “There’s a great line that Winston Churchill used about England, which was something on the order of, This country has the heart of the lion, and I just happened to be the roar. That’s exactly how I felt. I didn’t view that I did that much. I just prodded people and yelled at people and did exactly what I normally do.”

In the frenzied days and weeks that followed 9/11, Lehman squeezed people and trading floors into the Jersey City building. They also found other space in Jersey City and Manhattan and even took over the Sheraton Hotel in midtown, where beds were moved out, desks were moved in, and a ballroom was reinvented as an IT hub. Other employees worked at home, accessing applications through a secure portal that had been in the pilot phase.

They weren’t the only ones to make a pilot project mission-critical. At Deutsche Bank, CIO Mitchell Lenson had been working on a virtual private network to allow remote offices to access the bank’s infrastructure. “Sept. 11 forced us to test the solution for real,” Lenson said in an e-mail interview from London. “We were able to deploy location-independent access, for which we now have more than 11,000 users.” That’s handy, since executives for the Frankfurt, Germany-based bank haven’t decided if its building near Ground Zero is salvageable.

At Lehman Brothers, executives didn’t want to wait to find out whether the building could be saved. In October 2001, Lehman bought a 32-story building at 745 7th Ave. being built by Morgan Stanley. This is no ordinary building and certainly not one that

brings to mind the frugal investment bank spun off from American Express in 1994. First-time passersby stop to gape at more than a dozen LED screens that cover the first several floors of the building and show artistic video montages of, perhaps, the light on a wheat field as a thunderstorm rolls in.

Despite the eye candy, Lehman has been defensive about what many New Yorkers see as an abandonment of Lower Manhattan. Employees point out that they're still in the city and say they couldn't have waited until May for their old offices to be ready. "Wall Street is virtual; it can be anyplace," Beyman insists. "From a technology standpoint, there's no reason to be downtown, uptown, midtown, even in New York City." The only constraint is the need to be close to customers and New York's talent pool. Also, the trading floor's backup systems must be within 35 miles—the distance that the optical glass fiber used for instantaneous backups can reach before the signal degrades.

Almost a year after 9/11, Lehman is still very much in recovery mode. The interior of the new building is being finished, and a new data center is under construction. "It's a greenfield, if you will," Beyman says, trying to be optimistic about the fact that Lehman still lacks redundant storage. "It's a chance to start over again and correct whatever sins of the past you have." There will be higher availability of systems and more real-time backups, and all the direct phone lines to customers won't terminate in one place, as they did at the World Financial Center.

Lehman also is developing business continuity plans tied to the color-coded Homeland Security Advisory System devised by the Office of Homeland Defense. If the country moves from yellow (elevated) to orange (high) warning level, for instance, certain executives might be instructed to work across the river in Jersey City, and nonessential employees might be told to work at home. In fact, home offices were so crucial in the recovery that Bridget O'Connor, Lehman's head of business continuity, is trying to get employees to work from home one day a month to make sure they have the know-how

to keep working if headquarters is closed.

But decentralizing operations can be more complicated than it sounds. "The way Wall Street operates, it's still very face-to-face rela-

tionship driven," says Sarah Diamond, managing director for KPMG Consulting in Boston, who has seen a lot of financial services companies begin to rely on IT—not

Hard Lessons Learned in Recovery

LEHMAN BROTHERS

Where they were on 9/11: 6,000 workers in 3 World Financial Center; 800 worked in 1 World Trade Center, with most of Lehman's IT operations. One employee was killed.

Where they went: Employees and trading floors were squeezed into offices at 101 Hudson St. in Jersey City, N.J. Lehman bought another nearby Jersey City building, and in Manhattan rented office space on Park Avenue and at a Sheraton Hotel. Other employees worked from home.

Where they are now: Employees began moving into new headquarters near Times Square in January.

Hard numbers: Lehman's net income fell 67 percent in the fourth quarter of 2001, and the company took a charge of \$127 million for costs associated with 9/11. For the first half of 2002, net income was \$594 million, compared with \$817 million the previous year.

Hard lessons: Centrally locating systems and personnel can put you out of business; phone lines should not terminate in one location; and people need to gain experience in working remotely.

MERRILL LYNCH

Where they were on 9/11: 5,700 workers in 4 World Financial Center; 2,000 worked at 2 World Financial Center; 1,300 workers at nearby locations. Three workers were killed.

Where they went: Most employees worked in existing space in Connecticut, New Jersey and New York, and others worked at home.

Where they are now: 5,000 employees had moved back into headquarters in December; 1,500 employees started moving back into 2 World Financial Center in February.

Hard numbers: Cited damages of \$43 million due to the attacks. For the first half of 2002, net income was \$1.3 billion compared with \$1.4 billion in 2001. Merrill has laid off more than 10,000 workers after Sept. 11.

Hard lessons: Voice over IP makes you less dependent on public infrastructure, and wireless provides flexibility in reconfiguring office space; contracts with carriers should stipulate the actual path a signal is taking to ensure diversity.

AMERICAN EXPRESS

Where they were on 9/11: 3,500 workers in 3 World Financial Center; 250 worked at 7 World Trade Center; 750 worked at 40 Wall St., and 100 others worked at other nearby locations. Eleven employees were killed.

Where they went: Headquarters temporarily moved to Jersey City, N.J. Other employees moved to seven locations in midtown Manhattan, New Jersey and Connecticut.

Where they are now: Employees started moving back to headquarters in May 2002.

Hard numbers: American Express cited a \$98 million pretax loss from 9/11. Net income for the first half of 2002 was \$1.3 billion, compared with \$716 million in 2001. The company has eliminated 15 percent of its 88,550-person workforce since January 2001.

Hard lessons: Business continuity planning should be geographically based, not building-based; and if you don't have a specific need for technology assets to be located in headquarters, move them out.

geography—to stay together. “They’re looking now at less concentration of people within one real estate location, as well as taking advantage of technology and doing more telecommuting. It changes the style of the way they do business.”

Before, Lehman had been so focused on personal interactions that it had considered ditching its Jersey City building and concentrating all its operations in Lower Manhattan. “If we’d gone down that path, we’d probably be out of business,” Beyman says. Now, Lehman will keep not only the property but also the backup trading floor there.

“Who knows what we’ll do three years from now, but for right now we have hot standby for our traders. I don’t know if that prepares us for World War III and the devastation of New York City, but it certainly prepares us for any kind of the really foreseeable future-type of events, like the evacuation of Manhattan, as horrible as it may be. We never would have gone down that path before, but now we go down that path.”

THE SAVVY NETWORKER

“You can never be too rich, too thin or have too much telecom recovery.”

—JOHN MCKINLEY, HEAD OF GLOBAL TECHNOLOGIES AND SERVICES, MERRILL LYNCH

John McKinley isn’t just the man who makes technology decisions for Merrill Lynch. He’s the guy who, with the weight of the country’s largest brokerage behind him, talks to financial analysts and journalists about what his Fortune 500 peers are buying and therefore which stocks will pay off. These days, when he speaks at luncheons about investment strategies, he likes to talk up voice over IP and wireless LANs. And when he talks about Merrill’s recovery after 9/11—well, he likes to talk up voice over IP and wireless LANs then too. It beats talking about the disasters that have plagued Merrill for the past year. “You can never be too rich, too thin or have too much telecom recovery,”



John McKinley, head of global technologies and services at Merrill Lynch, says a reliance on wireless technologies—phones and networks—helped the brokerage house get back online after Sept. 11. McKinley stands at the Broad Street subway station near Wall Street.

says McKinley, the 44-year-old executive vice president and head of global technologies and services for Merrill Lynch.

Sage words, because even companies whose headquarters weren’t damaged on 9/11 had significant problems with telecommunications. A Verizon hub at 140 West St. was severely damaged, which affected phone service throughout the region. Thomas Moogan, managing director of the general services division of Citigroup Corporate and Investment Bank, says he learned that it wasn’t enough to have more than one telco provider. “When you think you have redundancy, you may have two [vendors] circuits running through the exact same trough downtown,” says Moogan, who heads busi-

ness continuity planning. Moogan adds that his company changed its contracts with carriers to include the actual path a signal is taking, in an effort to diversify service.

At Merrill, “we had all the classic game plans in place: diverse vendors, physical diverse routing, different central offices blocks apart,” McKinley says. None of the diverse technology in Lower Manhattan mattered, of course. After Sept. 11, 9,000 Merrill employees from four buildings downtown suddenly didn’t have a place to go to work, let alone working telephone connections. The first step was rebuilding trading floors and moving employees into crowded offices in four towns in New Jersey, where thousands of voice-over-

Continued on Page 64

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Continued from Page 61

IP handsets saved the day. "That allowed us to effectively deliver our own dial tone overnight Tuesday night when the vendors were rightfully concerned about health and human safety, government services and the exchange itself," says McKinley, who can now justify expanding his once-risky voice-over-IP plans, begun in 2000. (He won't say how much Merrill spent on the technology.)

The buildings used for recovery were also outfitted with wireless LAN devices governed by the 802.11 set of standards. With a WLAN setup, rather than running cables to individual workstations, technicians install access points that broadcast the network signal to multiple wireless network cards. That setup gave Merrill tremendous flexibility in reconfiguring office space and was so crucial that McKinley is now making WLANs part of new building specifications.

The second step of recovery was moving

back into headquarters at 4 World Financial Center starting in October. At first glance, the building seemed to be in good condition (though 900 windows were blown out of another nearby Merrill office building at 2 World Financial Center). But because loss of electricity immediately after the attacks caused high temperatures in the headquarters office tower—and also because the warranties were voided—a great deal of the computer equipment had to be replaced. Most of the equipment was covered by insurance. Merrill wasted no time, moving 500 to 1,000 employees every weekend—this compared with American Express's decision to move 400 employees back every two weeks. "Having rebuilt three trading floors in six days, management wanted to give me 12 to do this," jokes McKinley.

On Oct. 21, 2001, McKinley was one of the first people who moved back downtown. Since then, he's watched the area start show-

ing signs of life. Public transportation, although not ideal, has improved, and some of the restaurants have reopened, along with the Century 21 Department Store, an Embassy Suites Hotel and a movie theater. A Merrill publication called the *North Tower Newsletter* kept employees informed about what services were available in what felt like an island in the midst of a disaster scene.

"I can't understate the emotional impact of it," says McKinley, sitting at a table in his airy corner office on the 32nd floor. "It's still emotional. You are no more than one or two degrees of separation removed in financial services. Either you knew somebody or you know a family impacted by it. It's tough," he says. Merrill lost three people in the attacks. "You're making me sad again," he says with a wry smile, trying to lighten the mood.

He can't afford to be sad, though, as he struggles to help make the company profitable again. Revenue was so bad that more

Former Nasdaq CIO Deals with Anthrax Scare in New Post

WHEN WE LAST saw Gregor Bailar, he was explaining how Nasdaq got back online within six days of the World Trade Center attacks. (See "How Nasdaq Bounced Back," www.cio.com/printlinks.) What the 38-year-old former Nasdaq CIO couldn't say then, however, was that on the morning of Sept. 11 he was deciding between buying a new home in New York City and accepting a job at Capital One in Falls Church, Va.

Bailar was tired of the commute from his home in suburban Washington, D.C., and Nasdaq needed a CIO who lived closer to the financial district. He had to make a decision. Then the towers fell.

"I think it was Thursday



CIO Gregor Bailar left Nasdaq last November for Capital One.

[Sept. 13] before I got back to Nigel [Morris, Capital One's president and COO] to say, Hey, I can't give you a word of whether I'm coming or not. I have to focus on Nasdaq," says Bailar, who was at Nasdaq for four years.

In the end, he decided that

Nasdaq would be just fine.

"Nasdaq survived fabulously. It meant that I could move on," he says.

As for his own new chapter, Bailar was astonished to find how much upheaval other companies were experiencing. When Bailar became executive

vice president of operations and technology and CIO on Nov. 15, Capital One was still reeling from the anthrax scare on postal services. Credit card solicitations had been slowed down for a month and a half. The company compartmentalized employees who open the mail, so that one suspect envelope couldn't shut down the whole operation. And employees had to freeze late fees for customers whose payments might be stuck in the mail system. Meanwhile, contingency planning had entered the boardroom.

"When I came here, we kind of woke up to the fact that, oh my God, this thing hit even more in some areas than I would have ever expected it to." —S.S.

than 10,000 employees were laid off. (The brokerage has also launched an ad campaign to try to mend its image, scarred by a \$100 million settlement that ended an investigation of stock analysts' possible conflicts of interest and, more recently, the suspension of Martha Stewart's stockbroker after allegations of insider trading.)

McKinley's efforts, while tied to Merrill's quarterly fortunes, also transcend them. For example, based on lessons learned during 9/11, he and his colleagues have made some changes in Merrill's overseas operations, looking at data centers and alternate trading floors in London and Japan. And discussions about how concentrated to be continue.

"The dialogue around real estate strategy has gone up several notches," McKinley says. "Where should you be geosourcing your talent base, your human capital? You're constantly balancing the synergies of colocation with the resiliency and recoverability of a more distributed model, and where should you be on that continuum? I think it's not a binary answer."

For a while after 9/11, there was a lessening of the competition—competitors helping each other out, sharing ideas about recovery. "Now it's back to the brass knuckles," he says, pounding the knuckles of one hand with the palm of another. He laughs. That's a good thing, he says. It means business is running again.

THE PRAGMATIST
“You're more dependent on your vendors than you think.”

—GLEN SALOW, CIO, AMERICAN EXPRESS

Glen Salow is pretty unexcitable for a man who helped mastermind a 4,000-person move back to Lower Manhattan that some observers called heroic. "There always will be nuts in the world, and a building that calls itself the World Financial Center in New York City is going to be a target," says Salow, the 46-

year-old CIO and executive vice president of American Express, his voice flat. "A lot of my job is assuming things are targets. If you have technology assets here and they don't need to be here for a purpose, they shouldn't be here. So get them out."

"THE DIALOGUE AROUND REAL ESTATE STRATEGY HAS GONE UP SEVERAL NOTCHES. WHERE SHOULD YOU BE GEOSOURCING YOUR TALENT?"

—John McKinley, head of global technologies and services, Merrill Lynch

Salow is getting them out in a grand way—and we're not just talking about the obvious decision, say, to start storing backup tapes for the office automation servers farther away from headquarters than the basement of the Trade Center. American Express's technology operations were already spread out, but the company decided to house only a few technology operations in its New York headquarters, such as the bare requirements of telephones and networked desktop computers.

It's part of a move to make continuity planning geography-based, not building-based. "We had a disaster-recovery plan for this building. We had a disaster-recovery plan for 7 World Financial Center, where we had our bank back office. Each building continuity plan worked, but we hadn't contemplated losing all of Southern Manhattan," he says. Now, Salow is looking at what might happen if business shuts down in Phoenix or Minneapolis, where the company's IT operations are based. "A CIO I worked for a long time ago used to say, 'You lose a whole data center every 10,000 years,' which was his excuse for not having disaster recovery, which was stupid then. You have to assume it's more likely to happen now, and it's affecting larger geographic areas."

Salow also signed a seven-year, \$4 billion outsourcing deal with IBM Global Services, announced in February. About 2,000 members of his 6,000-person IT team are being transferred to IBM. (So far, about 99 percent

of them have accepted the offer, he says.) Salow says the deal will save hundreds of millions of dollars and likens it to purchasing electricity rather than generating it. For less money, he says, American Express can draw on the resources it needs, when it needs them.

Salow went ahead with the IBM deal despite the fact that 9/11 taught him how much he already relied on his vendors. In the future, he says, he'll spend more time delving into how his vendors would recover from a disaster. But some vendors have already proven themselves with their actions. "If I look at the role IBM Global Services played for us, at the role Compaq played for us, they've got every bit of help we could ask for, and it's there before we could ask for it," he says. With the outsourcing deal, he says, "On the one hand, we're more dependent on IBM Global Services, but on the other hand, I think I got a really cheap insurance policy."

Between the employees being transferred to IBM and the thousands laid off since September, though, things are certainly looking different from the 51st floor of the American Express building—even for Salow who doesn't happen to have a view of the Trade Center site. "Maybe in a few months, I'll stop long enough to think about it and may in fact be taken aback by the level of change and how we got through it," Salow says. "But during the process we just did it." **CIO**

E-mail Senior Writer Sarah D. Scalet at sscalet@cio.com.

cio.com Did Sept. 11 really change your business? Go to **TALK BACK** at comment.cio.com/talkback.

A man with grey hair and a mustache, wearing a dark suit jacket over a light blue shirt and light-colored trousers, is sitting in a field of tall green grass. He is looking off to the side with a thoughtful expression. In the background, the word "BUY" is written in large, bold, green capital letters against a light sky. The overall scene is outdoors with some trees visible in the distance.

BUY

Ryder CIO Eduardo Vital says the recession has had little effect on his IT budget because his company believes that strong IT is critical to staying competitive.

ERP'S MARKET

As vendors offer deals and your competition sleeps, now may be the best time to boost technology spending

BY TODD DATZ

THIS MUCH IS TRUE: Companies have slammed the brakes on IT spending in the past year and a half—a fallout from the recession, 9/11 and a stock market suffering from an onslaught of questionable accounting methods, outright fraud and jittery investors.

The technology engorgement that commenced in the late 1990s has so satiated companies that requests by CIOs for even a few crumbs—a new Java programmer, a desktop upgrade—now get as much scrutiny as a request to fly first-class to the Cleveland office. “I don’t think there will ever be a return to what happened—the perfect storm of Y2K, ERP and the Internet,” says Paul Hoogenboom, vice president of operations and CIO at Medina, Ohio-based RPM, the maker of Rust-Oleum and other specialty coatings.

But there may be some light peeking out from under the dreary haze: According to “IT Planning for the Economic Recovery,” a recent *CIO* Research survey of 251 IT executives, nearly 60 percent of technology executives see IT spending picking up either this year or by the first half of 2003. And 18 percent said their spending never slowed down (see complete survey results at www2.cio.com/research).

Reader ROI

- ▶ Find out why many CIOs are gradually increasing spending in the middle of a slow economy
- ▶ Learn where CIOs are putting their technology dollars
- ▶ See why now may be the best time to take advantage of vendor weakness

Budgeting

Investing wisely in technology now can help grow the business and give you a jump on the competition still ensconced in their foxholes. Fact is, it's still a buyer's economy out there—vendors are practically trampling over each other to earn or maintain your business. To sweeten the pot, they're offering deep discounts on hardware and software, performance-based contracts, and flexible pricing plans. Taking advantage of this reversal of fortune between buyer and seller, plus continuing to invest in technologies that can help you get closer to your partners and customers, may be just the cure for your recessionary ills.

Get a Jump on the Competition

Despite the mixed signs of a recovery, this could be the best time to convince senior management to increase IT spending, especially if your IT budget has been heading south instead of north. That advice may sound counterintuitive to some, but if your competitors are lying low, waiting for a turnaround, jump-starting your technology investments can put you in the passing lane while the competition continues to ramble along at 55 mph. "If your competition is risk-averse, if you dare to innovate, the risk is higher but the payoff can be fantastic," exudes Howard A. Rubin, executive vice president at Stamford, Conn.-based technology consultancy Meta Group. At the heart of his logic lies a trend he's seen in IT management for the past two years: Technology is being managed more like an investment portfolio—sure, you need conservative investments, but the only way to generate big payoffs down the road is to take a few risks.

Rubin cites Blockbuster, which—instead of pulling in the reins while in the face of the online digital entertainment onslaught—is investing in new technologies, such as self-service checkout (akin to Mobil's Speedpass). He also points out that British Airways, which is building a new, innovative facility at London's Heathrow Airport, is planning to use technology (for example, radio frequency tags to track baggage and self-service check-in areas) to make the flying experience more efficient and pleasurable. "The winners in IT

will be determined by managing risks and not following the pack," Rubin says.

At Boston-based MFS Investment Management, home of America's first mutual fund, CIO Peter Noll enthusiastically agrees with that line of thinking. In fact, he sounds downright cheery when discussing the effects of the recession. "We see it as an opportunity to leapfrog competitors in areas that we think are going to be high growth when the market turns around," he says, mentioning its institutional marketplace and global investing unit as high-value opportunities. Technologies that will help support those initiatives include a high-capacity 100MB network across the enterprise, and a new real-time messaging infrastructure (IBM's MQ series) to support the company's global operating model, and it will implement a storage area network. "We're hunters, not farmers," he says. "During a down time, we keep hunting."

Vendors are trampling over each other to earn your business.

Riding Out the Storm

A number of IT budgets took swan dives in 2001 and 2002, in tandem with a drop in corporate revenue and income—according to our survey, 43 percent of companies saw their 2002 IT budget decline (see "Triple Whammy," Page 70). Consumer product companies were hit particularly hard. Aydin Onur is vice president of e-business at Sunnyvale, Calif.-based Philips Components (a division of Philips Electronics), which manufactures components for the OEM market as well as for consumer electronics, such as cell phones. Onur watched his actual spending in 2001 drop a precipitous 42 percent from what was budgeted at the beginning of the year. For 2002, his spending will decline 25 percent from 2001. "The recession had a big effect on all the market segments we play in," he says. Some projects were terminated and some staff was let go. And a number of projects were put on hold, including a prod-

peer resources

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uct data management system, an ERP consolidation program and a CRM system.

However, for all the harsh numbers and gloomy macroeconomic reality that ushered in 2002, a good chunk of companies increased their IT budget this year. For instance, at Ryder System, the recession had little effect on IT spending because senior management believes that IT is critical to staying competitive and serving its customers. "In reality, we didn't take a hit or go below a certain budget line," says Eduardo Vital, executive vice president of IT services and CIO of the Miami-based global trans-

portation and logistics company. In fact, the IT budget for 2002 at Ryder rose about 12 percent over 2001, an increase similar to those in the previous four or five years.

As Spending Picks Up, Where Will the Money Go?

Our survey showed that IT executives are conservatively optimistic that spending will pick up—30 percent said that it would happen in the first half of 2003 (see "Buying Will Pick Up Early Next Year," Page 70), and 86 percent said that company performance is an important factor when making decisions about IT, which may be a sign that they have confidence their company will benefit from the economy's gradual recovery. [Editor's note: At the time this story was reported, most companies were still in the planning stages of their 2003 IT budget.]

In addition, 45 percent said they plan to accelerate spending on infrastructure up-



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Budgeting

grades, such as servers; 30 percent expect to invest in CRM; and 29 percent plan to increase desktop upgrades and replacement expenditures. Other popular areas for increased spending include security and legacy system migration (25 percent), and e-commerce and software upgrades (24 percent). Rubin says that he sees infrastructure consolidation as a popular trend.

At Irving, Texas-based Flowserve, a provider of flow control products and services, Vice President and CIO Rory MacDowell says it's too early to tell what his 2003 spending will be. However, he knows that three of the top priorities will be integration (including a planned CRM project), standardization (hardware and software platforms, tools and processes) and digitization

(which includes e-business and internal productivity projects). MacDowell says one of the main goals of his standardization efforts will be reducing the array of different manufacturing systems, which currently number more than 40. He also hopes that standardizing will help achieve an internal goal of \$15 million in revenue per IT employee.

Philips's Onur says his division will be aiming to restart the projects it put on hold this year, including product data management and CRM projects. Onur hasn't finalized his 2003 budget yet, but he believes it will be flat, or at best, may see a slight increase.

At Ryder, Vital is shooting to increase next year's IT spending by more than the 12 percent growth it has been averaging in recent years. Part of what attracted Vital to

the job was the increasingly important role IT plays in the company. "The IT organization has a new charter to act as a business strategy partner; [to act] in a consulting capacity to business areas," he says. "It's a different perspective on how IT can bring value to the organization." Major areas of focus next year include EAI projects, its warehouse management system and leveraging the Web in its third-party logistics business. Vital may also add another 20 to 30 IT staffers. He notes, however, that there will be cost-containment initiatives in the operating budget in areas such as network bandwidth and phone coverage.

Some companies ply their trades in industries that are immune to consumer-driven cycles. Los Angeles-based Northrop Grum-

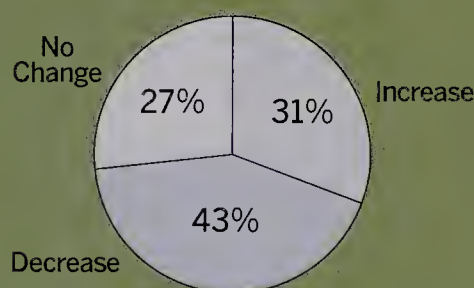
CIO RESEARCH

Planning for the Economic Recovery

CIOs believe the money will be there for future IT investments

Triple Whammy

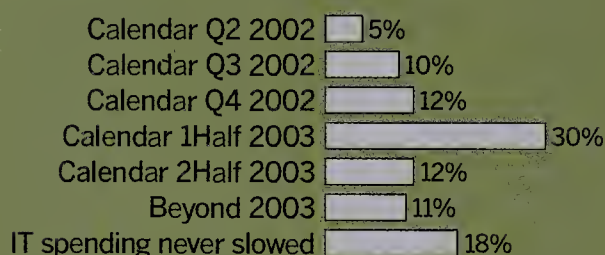
Was your 2002 IT budget increased, decreased or not changed from 2001 levels?



According to Howard A. Rubin, executive vice president at Stamford, Conn.-based technology consultancy Meta Group, \$810 billion was spent on IT last year; this year, he projects that figure to be in the high \$700 billion range, a huge cut. He says that IT departments have been hit by a triple whammy: IT spending as a percent of revenue is down compared with 2001; absolute dollar spending has declined; and layoffs, practically unheard of a few years back, became widespread.

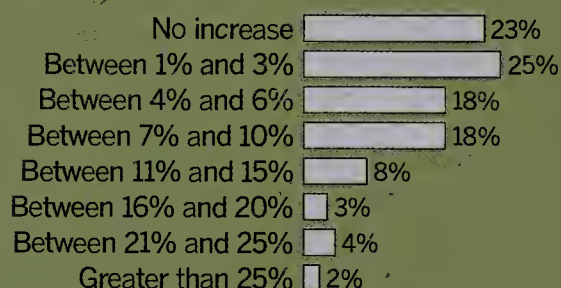
Buying Will Pick Up Early Next Year

When do you expect your organization's IT spending to pick up?



There Will Be Slow, Steady Increases in Spending

By what percent do you expect your organization's IT spending to begin to pick up?



Gartner Analyst AI Case thinks IT budgets will rise 4 percent to 6 percent in 2003 and is optimistic that there could be a return to double-digit increases in 2004.

Integration Gets the Cash

What will be the top three strategic, IT-driven priorities as we emerge from the recession?



Gartner's Case notes that in the category of external customer service/relationship management, more spending will likely occur in B2B e-commerce than in B2C. "There's much more technology used among trading partners than among individuals," says Case.

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Rory MacDowell, CIO of Flowserve, says his top three spending priorities in the coming year will be on CRM, standardizing systems and a digitization project.

man, for example, has benefited from a cornucopia of defense dollars, partly fueled by increased spending on the military since President Bush took office. Keith Glennan, who is the CIO for the IT sector, thinks it's likely that his IT budget will increase slightly. He's committed to reducing the recurring budget for things such as IT support and increasing the nonrecurring budget. Projects he'll be focusing on include integrating recent acquisitions, such as Litton Industries and Newport News Shipbuilding, onto its SAP platform and doing more business electronically, such as Web-based collaboration with suppliers.

Work with Your Vendors

When CIOs are able to boost spending, one factor makes it a lot easier to take on a predatory role: receptive vendors. As IT spending has stalled, the vendor community, which a few years back had no problems selling large, expensive enterprise packages to CIOs flush with funds, is now cutting deals faster than a Big Three automaker. "Vendors are more willing to be creative and look at alternative ways of achieving the same objective," says Flowserve's MacDowell. "They're looking for new and creative ways to get a bigger piece of the IT wallet."

Noll wholeheartedly agrees. "From a

pricing perspective, they're willing to do almost whatever's necessary to get the business," he says. Before, says Noll, the menu was à la carte—companies were charged separately for software licenses, training and consulting, for example. "Now we can bundle training, license fees and consulting all in one and hold [the vendors] accountable for the success of the product," he says. Noll also notes that his vendors are providing—free of charge—jump-start programs in which they train his staff on how to install and configure an application or system and get it up and running in two months.

Rubin reinforces that there's been a sea change in the technology marketplace. It's a buy-side economy, he says, in which the buyers don't have an imperative to upgrade. Rubin sees massive discounting on initial software licensing fees and deals on hardware and storage, and also notes that there's a move away from fixed-cost pricing to variable pricing for goods and services, which he dubs "cell-phone economics." That is, companies can now purchase storage and processing power by prepaying—or paying by the minute—for example, flexibility they didn't have as much of in the past. He cites IBM as an example, which is offering variable pricing on its mainframes—you don't

pay when you're not processing.

Al Case, a senior vice president and analyst at Stamford, Conn.-based IT consultancy Gartner, adds that companies are also making sure outsourcing agreements include performance benchmarks. Now, contracts include language that says, In X point in time we'll do a formal benchmark, then revisit the contract if that benchmark isn't met. "I don't think we're seeing fewer long-term contracts, but more renegotiation and repricing points, based on service levels and market conditions," Case says. Rubin views benchmarking in general as key to cutting the best deals with vendors. He throws out a litany of categories, including price, cost, performance, labor rates and transaction rates, which should be looked at when negotiating.

Ryder's Vital also likes the fact that vendors are ditching the thou-shalt-do-what-we-command approach and are more willing to act as partners. "Before, vendors came in with the answer," he says. "Now they take the time to understand our business." Vital admits he used to play that role; he joined Ryder six months ago from Accenture (where he worked closely with Ryder).

Even with pliable vendors, however, many CIOs willing to invest in growth areas face significant and understandable hurdles—their company may be suffering from stagnating revenue and income; the business side (and some IT executives) still feel burned from the zealous IT spending of recent years; and many execs just want to focus on getting the most from the huge investments in ERP systems and the like that they made in the go-go days.

Is the economy undergoing a gradual recovery? It depends on what statistics you believe and what day of the month it is. Whatever your view, it makes a whole lot of sense to not get caught flat-footed when it happens. To use Noll's metaphor, there's a time and place for gathering, but at some point you've got to pick up a spear, leave the cave and head out for the big game. **CIO**

Senior Editor Todd Datz wants to hear what's happening to your 2003 budget. He can be reached at tdatz@cio.com.

Web SERVICES

Still Not

Reader ROI

- ▶ Find out why security and reliability are the two biggest hurdles facing CIOs with Web services
- ▶ Learn how some of your peers are working around these problems with controlled experiments
- ▶ Understand how Web services work and what its promise might be for your company

The Next Hyped Thing is starting to show its age.
Time for a reality check of what Web services can and cannot do.

AH, THE PROMISE OF WEB SERVICES,

the Internet-resident applications that have the major technology vendors united for the first time ever and consequently the entire sector abuzz with unbridled enthusiasm. According to its own rapidly spreading mythology, Web services—where application can talk to application without messy human intervention—is going to solve every lingering technical challenge. In the future, all your applications—from the largest CRM system to the smallest utility—will interact seamlessly, thanks to Web services. If you decide to sell something over the Web, you won't have to write a program to verify credit cards; just let your Web service go into the Internet marketplace and find an application to do that for you—at a good price to boot.

And the early indications are that it might just happen. Some day.

For now, CIOs and experts agree on only two things: that the name *Web services* is terrible and that there are enormous hurdles to clear before the hype becomes a reality.

Ready for PrimeTime

BY BEN WORTHEN

Which isn't saying that CIOs aren't experimenting with Web services. For example, Motorola has a Microsoft-based B2B e-commerce application that handles about \$2 billion a year. One of the application's core pieces is its credit card validation function. "There are a lot of different credit cards out there, but [building the validation function] is logically pretty simple," says Toby Redshaw, vice president and director of IT strategy, e-business, business development and architecture for the Schaumburg, Ill.-based telecom company. "However, it is a bit of work to go and code it." Recently, Redshaw needed a credit-checking function for a new B2B application in a

different business unit. Rather than build the new application from scratch, Redshaw transformed the existing credit validation function into a Web service by wrapping it with XML, the lingua franca of the technology, and plugging it into the new application, making it available for any other business sector. Redshaw estimates that the strategy saved between \$100,000 and \$150,000 in development costs. "I also saved time and started the idea that these things actually work," he says.

The Motorola example demonstrates how Web services *can* work in a controlled environment. But it also shows the technology's biggest weakness: deploying Web services over the Internet remains a challenge. There are areas, most notably security, where there aren't agreed-upon standards. The Internet is a poor platform for today's version of the technology—Web services might have been built to run on the Internet, but the Internet wasn't built to run Web services.

perhaps most telling, keeping their Web services experiments safely in-house for the time being. They're seeing the promise of Web services with small-scale implementations—but they're keeping the present-day reality firmly in mind.

THE SECURITY SETUP

By far the biggest concern among Web services users is security. A recent survey, "Enterprise Development Management Issues 2002," by Santa Cruz, Calif.-based market researcher Evans Data found that security and authentication were the number-one hurdles for 48 percent of the 400 IT executives interviewed—more than double that of the runner-up, bandwidth, at 22 percent. Mark Hansen, vice president and CIO of Long Grove, Ill.-based Kemper Insurance, says that security is actually two separate problems: one technical, one business-based. On the technical front, there are no industry-

Can't They All Just Get Along?

Vendors claim to be trying to work on Web services together. They're not.

ONE OF THE REASONS everyone is so bullish on Web services is that the major technology companies, including IBM, Microsoft and Sun Microsystems, are all supporting the same set of standards. Put mildly, this is a break from past tendencies. An encouraging sign came recently when executives from Microsoft and Sun shared a stage—with no lawyers present—to debate Web services in front of students in Boston University's MBA and MS program (and one CIO reporter). Gerry Miller, CTO for Microsoft in the Great Lakes, and Joseph Williams, global chief architect

for Sun One professional services, spent the first 45 minutes exchanging good-natured barbs and agreeing that Web services has a bright future.

But the second half of the evening took on a different tone as the two sides took turns arguing the virtues of Java 2 Platform Enterprise Edition (J2EE) versus .Net. Each challenged the other side's commitment to open standards; Williams suggested that Microsoft was pulling "the old bait and switch," and that eventually .Net-based Web services will start to work better with Microsoft technologies.

Williams pointed out that Sun was notified that the Microsoft-led Web Services Interoperability Organization existed only two days before it launched last February. Miller countered that Sun has formed an anti-Microsoft group called the Liberty Alliance.

Even the jokes were revealing. "Remember, they are a convicted monopolist," said Williams, warning against committing to Microsoft technology. "They weren't criminal charges," answered Miller: "We're just a monopolist."

Hmm. Does this give us hope? —B.W.

(For a definition of Web services and its bevy of acronyms, see "So What Is Web Services, Anyway?" Page 75.)

Until the necessary solutions are created and gain widespread adoption—which experts say won't be for another couple of years—CIOs hoping to use Web services must come up with their own security and reliability solutions. Furthermore, while it is fairly easy to convert any existing application into Web services, CIOs must tread carefully—anything they do now will have a big impact on their overall systems architecture in the future. The CIOs we talked to, however, are definitely not avoiding Web services. They are configuring workarounds and,

accepted security standards for XML. And even if there were, nobody is sure on the business side of what the contract language would have to be in order to convince CIOs that they could safely use a company that their Web services found on the Internet for important transactions. Who are you going to trust—and how is that trust going to be validated—in the ideal world of Web service talking to Web service?

While it's just a matter of time until standard security protocols emerge, it is enough to give a CIO trying to use Web services a headache. Currently, every XML security protocol on the market is a proprietary vendor offering and

So What Is Web Services, Anyway?

An explanation

MOTOROLA'S VICE PRESIDENT and Director of IT Toby Redshaw says of Web services, "If it is confusing, that means you are paying attention." And it is. Web services is Internet or other IP-based network applications built with four emerging standards: XML, simple object access protocol (SOAP), Web services description language (WSDL), and universal description discovery and integration (UDDI). That allows the applications to talk to each other—no human intervention needed. What Web services is all about is interoperability of applications, be they written in Perl or Java or Windows or whatever.

This is how it might work: You start a website called HowLongCanILiveIn.com, which tells users how long their money would last them if they ran away to, say, Paris. And what the weather will be like. The thing is, you don't want to write programs for currency conversions and weather forecasting. So you put up your website with a client application (a Web service) that will go to the "yellow pages"—UDDI—to find listed services that will meet your needs. There, your client application downloads the WSDL that gives it the information it needs to invoke the Web service for, say, currency conversion. Never mind that the one you find was written in Java and your program

is written in C++; the data is described using XML tags that both applications can understand. Your message asking for the currency conversion application is embedded in a SOAP envelope and shipped out on HTTP, the standard Internet transport protocol. Meanwhile, another application is doing the same for weather information. Within the blink of an eye, your first user has determined that with her current life savings, she can live in Paris for one month, which will be under partly cloudy skies and in the 70s. How about Costa Rica?

Note the use of the word *emerging* above. The standards are still very much under development. —B.W.

therefore not truly open. Hugo Haas, Web services activity lead with the Cambridge, Mass.-based World Wide Web Consortium (W3C), the standards setting group, says that at this point W3C hasn't even finished determining everything an XML security standard would require, let alone deciding on a standard. Until the security issues are cleared up, the one-time transactions that would come from a Web services "yellow pages" (known as universal description, discovery and integration, or UDDI) are only a dream.

Some companies experimenting with Web services over the Internet are doing so only with established business partners, skirting the issue of creating on-the-fly contracts and connections with unknown partners. Security becomes less of an issue if you are dealing with a limited number of users, says Perry Cliburn, CIO of early Web services adopter Hewitt Associates. The Lincolnshire, Ill.-based human resources outsourcer offers 401(k), health plan management and data exchange via Web services to five of its customers and two third-party service providers. While some companies are offering secure Web services by setting up VPNs to essentially bring the user behind the company's firewall, Hewitt wanted to do Web services as close to the textbook—using the public Internet, that is—as possible, Cliburn says. "We could have bypassed the Internet and had a unique pipe that was a lease line, but we had to figure out how to do it [over the Internet] anyway," he says. Hewitt's Web services authenticate users based on private and public-key infrastructure (PKI) certificates, which are embedded in headers. According to Cliburn,

all requests are made and responses given over an SSL-encrypted channel, and each Web services request is authenticated using a digital signature embedded in the header.

That solution results in the proverbial good news and bad news. Tim Hilgenberg, Hewitt's chief technology strategist for applications, says that it is a great way to tell client A from client B. The bad news is that it makes sense when you have a client A and a client B, and not an alphabet of other clients. The necessary protocol that describes

what a particular application actually does (known as Web services description language, or WSDL), however, doesn't support PKIs: The PKIs have to be hand coded, which Hilgenberg says "is easy to manage with a couple of services. But if you have 1,000 services [across a set of clients] you don't want to be touching it by hand. That just isn't cost-effective."

Turning to the big picture, in all likelihood the security standards *will* be ready for one-off Web services—such as getting a buyer's credit card verified for a one-time sale—before you are. In the meantime, a handful of startup vendors, such as Grand Central Communications and Flamenco Networks, are willing to serve as third-party authenticators for CIOs looking to get an early jump on the competition. But in a space this new, many CIOs are reluctant to trust a startup—particularly one whose role depends on vendors' inability to agree on security standards.

CIO.com Confused? We can clear that up. For an **INTERACTIVE PRESENTATION** that clearly describes what Web services is and how it acts, go to the online version of this article.

THE RELIABILITY RUNAROUND

In a recent speech, Joseph Williams, global chief architect for Sun One professional services in Denver, summed up Web services' other weaknesses as "all the '-ilities,'" listing reliability and scalability as the chief culprits, but leaving the door open for others.

Reliability and its attendant weaknesses have a common cause: the Internet and, more specifically, the HTTP communication standard, which just isn't a good fit for Web services. The big issue with HTTP is that it is connectionless and eventless, and it can't handle distributed transaction coordination the way common object request broker architecture (CORBA) can. In the middleware platforms of CORBA and COM (component object model), tightly coupled, internal software development worlds, data delivery is guaranteed. But the Web services world is loosely coupled—delivery isn't guaranteed. Or not yet anyway. Ted Schadler, a group director at Cambridge, Mass.-based Forrester Research, compares HTTP to a telegraph line and

SO WHERE DOES THIS LEAVE THE CIO?

Assuming that the current level of industry cooperation continues (see "Can't They All Just Get Along?" Page 74), the current performance and security limitations shouldn't hold back Web services for long. Forrester's Schadler says that the Internet makes Web services so cheap that whatever problems there are now will eventually be solved. "Saying people won't use Web services over the Internet because of HTTP is like saying no one will use e-mail because the addresses are too hard to remember," he says.

Despite successful workarounds and inevitable solutions to Web services' shortcomings, it is relatively easy to convert an existing application into a Web service (Motorola's Redshaw can do it in three mouse clicks)—and if a CIO followed the advice of many vendors and gurus they would. But CIOs should err on the side of caution here. While on the surface Web services seems to do away with the need for middleware that connects applications and databases, that's not

Companies experimenting with Web services over the Internet are doing so only with established business partners.

For now.

says that the machine-to-machine transactions in a Web services world require an open-line, telephone-like connection. Unfortunately, no one has figured out how to do that yet.

To be fair, HTTP works pretty well most of the time. But when you're considering sending sensitive business data, pretty well isn't reliable enough. "It's like the U.S. mail," says Hewitt's Hilgenberg. "It will get there 99 percent of the time, but if you want to guarantee delivery, you have to send it certified. HTTP is reliable 99 percent of the time, but there is a chance you could lose packets. For financials, you can't do that."

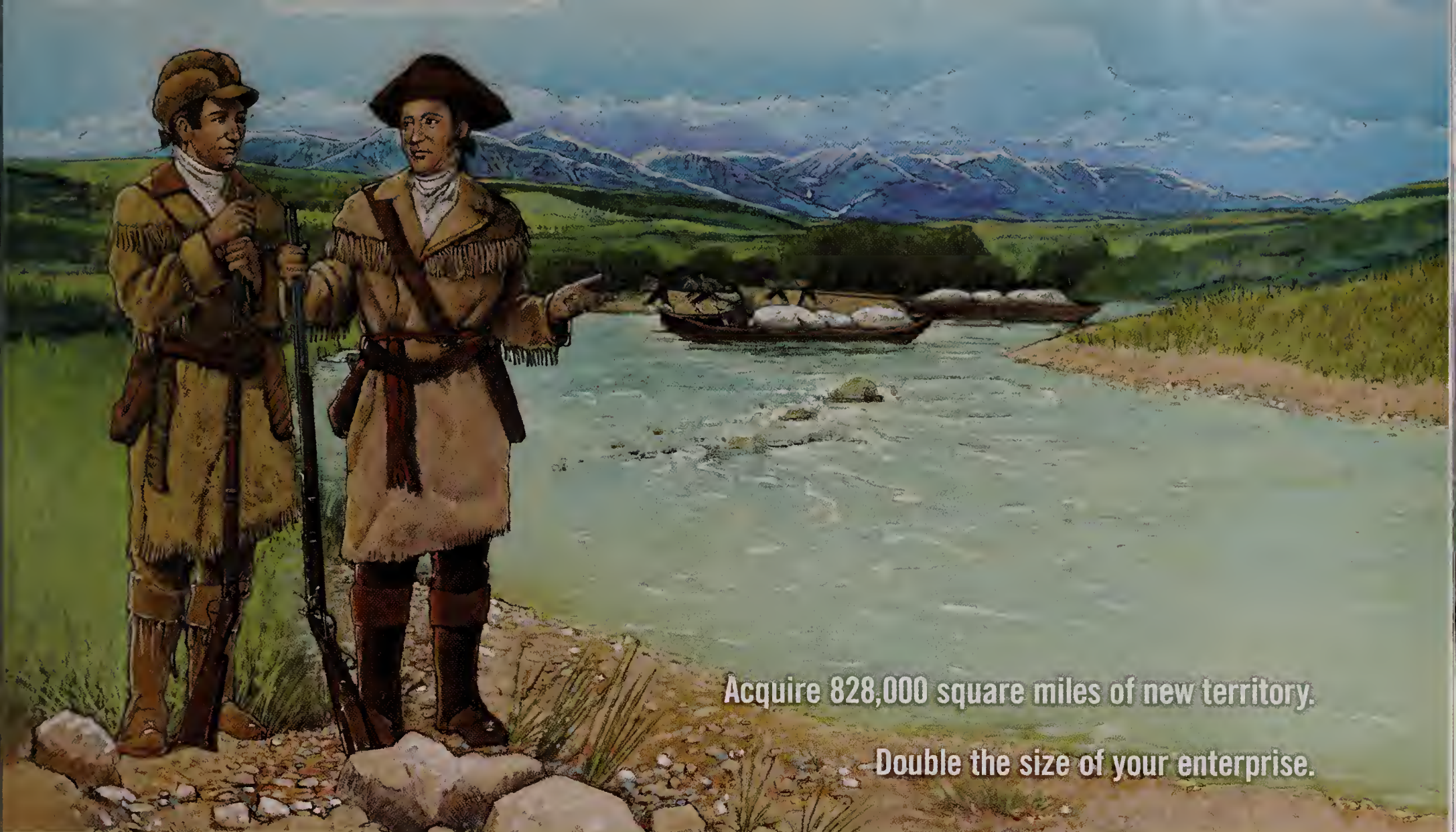
Prasuna Dornadula, senior vice president and CTO of CareTouch, a health services company in Concord, Calif., has set up a VPN in order to run a Web service that lets CareTouch patients schedule an appointment with any one of 5,000 physical therapists in northern California. The dedicated connection allows Dornadula to use IBM's MQseries middleware to guarantee delivery. While the setup works for scheduling physical therapy sessions, Bernhard Borges, managing director for PWC Consulting's advanced technologies group in New York City, says that it doesn't make sense to use a messaging tool for the large financial transactions that Web services will eventually be used for. "The best you can do [with MQ] is know I handed it off," he says, "I don't know if you read it or not."

always the case. In fact, Redshaw says that the opposite is true: Web services (at this point, anyway) is just another layer that uses middleware to connect to the data. Building a lot of Web services could prove fatal to a company that doesn't have a middleware-intensive, three-tier architecture in place. Redshaw likens it to erecting a fabulous skyscraper that's not connected to the city's electric grid—you may have something great, but you can't use it.

Furthermore, Web services adds an extra layer of complexity that not all IT departments are in a position to handle. "When a program breaks, the hardware guy blames the application guy, the application guy blames the database guy," says Redshaw. "Now they can all blame the Web services layer." And building hundreds of Web services applications before installing an inventory system to keep track of them makes them impossible to reuse—which is the reason for building Web services in the first place.

What all this really means is that between building a middleware-intensive architecture, an organized Web services repository and conducting trials with some established business partners, CIOs should have enough work to tide them over until standards emerge. The future is coming. **CIO**

E-mail feedback to Staff Writer Ben Worthen at bworthen@cio.com.



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Businesses have been leaving money lying on the international trade table simply
But now a new breed of IT systems is helping those companies cash in.

Every year, the U.S. government charges U.S. companies billions of dollars (\$22 billion in 1999 alone) in customs duties on the products and raw materials they import. And every year Uncle Sam obligingly refunds several billion to those same companies when they export the goods they previously imported. It's called duty drawback. But here's the surprise. Even though they're entitled to refunds, businesses are leaving billions unclaimed. Why? Proving they're entitled to them is just too much work.

Collecting the duty drawback is contingent on documenting the link between the imported goods and their subsequent export. That's not too hard with big-ticket items such as cranes, trains and jet airplanes. It is, however, very difficult to prove that those particular nuts and bolts from Taiwan were, in fact, the very same nuts and bolts used in assembling a specific automobile that was later shipped to Brazil.

This is where IT comes in. By deploying software systems that know the intricacies of the rules and their associated supporting documentation and that can also track products and components with sufficient granularity to prove that those Taiwanese nuts ultimately ended up in the chassis of a car sitting in a showroom in Rio, enterprises stand to recoup some not-so-small fortunes in drawback refunds. And wouldn't it be nice if it were the CIO who could enable his enterprise to retrieve that treasure?

Reader ROI

- Understand the hidden costs of failing to keep up with changing trade regulations
- Find out how you could end up doing business with Osama bin Laden without knowing it
- Learn about the shortcomings of software systems designed to rationalize global trade

PING

because it's been too hard to pick up.

BY MALCOLM WHEATLEY



Only the government ships more stuff than DuPont, says CIO **STEVE COHEN**. A new system will soon go live to track each of DuPont's more than 1 million annual international shipments.

REGULATIONS: A LABYRINTH INSIDE A MAZE

Right now, it's the best of times and the worst of times for global trade.

It's the best of times because a clutch of software companies that most CIOs have never heard of is making trading with Mongolia as straightforward as trading with Missouri.

It's the worst of times because international terrorism has made governments acutely protective of their borders. And when governments get protective, rules proliferate.

As is, international trade is beset with tangles of tortuous regulation. Until the Customs Modernization Act of 1993, for example, vessels entering U.S. ports were obligated to report the number of cannons on board. And although that requirement is gone, reams of similarly outdated, burdensome and maddeningly abstruse rules remain.

Cut through those regulations, and rich overseas markets, profitable supply sources and cost savings propagate like Dutch tulips. The world's top 2,000 companies could gain some \$30.2 billion in savings if international trade could be made to work more efficiently, says John J. Coyle of Penn State's center for supply chain research and emeritus professor of business administration. Excluding freight charges, duties can represent up to 75 percent of the total cost of importing goods and services. "As the largest component of importing expenses, it's the area in which there is the most room for direct cost savings," Coyle says. He reckons that in 2001, U.S. businesses left as much as \$10 billion in duty drawback on the table.

"Maybe they couldn't get all of it back, but a significant proportion could be claimed if companies kept better track of things," he says.

DUPONT GETS IT RIGHT

Keeping better track of things is exactly what chemical giant DuPont aims to do, says Steve Cohen, CIO of the Wilmington, Del.-based company's global sourcing and logistic services. Most years, DuPont ships more 20-foot containers of freight from the United States than any other business—80,000 of them in 2001—packed with famous DuPont brands such as Teflon, Tyvek and Kevlar. (The company that perennially vies with DuPont for first place? America Chung Nam, which ships wastepaper to China.) "Only the government ships more stuff," Cohen brags. And with such massive quantities of inventory continuously in transit, much of it through third-

CIO.com It pays to incorporate IT in today's global trading market. And when it comes to doing business in China, it pays to know—and heed—the local rules. Go online to read **THE CHINA SYNDROME** for the inside scoop. Find it at www.cio.com/printlinks.



party freight-forwarding companies, keeping tabs on it all is quite a challenge.

But next month, according to Cohen, the first phase of a system to do just that will go live. TransOval (a word play on DuPont's oval-shaped logo) will enable DuPont to track each of the more than 1 million shipments it makes across international borders each year. That will generate better customs and shipping documentation, which will produce fewer border holdups. That means DuPont products will spend less time waiting in warehouses. And it will also mean bigger drawback checks, says Cohen.

DuPont has woken up to the fact that more efficient management of international trade processes offers a real opportunity to add dollars to the bottom line. To do that, businesses are turning to specialist international trade software systems from companies such as Fasturn, G-Log, NextLinx and Vastera. Vastera, for example, is credited by Ford with helping the automotive giant generate savings of more than \$1 billion a year.

As automation projects go, that's a pretty hefty ROI.



PM Global Foods Logistics Manager **MIKE HAMPEL** says that after digitizing the process for producing bills of lading, what used to take almost a week now takes two to three days.

IMPORTING: THE FLUCTUATING COST OF BED SHEETS

The rules for importing goods make up a volume one and a half inches thick. Of course, that's way too slender a volume for lawmakers, so further guidance is contained in the linked 4-inch-thick volume of the Code of Federal Regulations.

But to actually import anything, you'll need the item's relevant identification code, which is contained in the two-volume, 8-inch-thick Harmonized Trade Schedule of the United States, published by the Office of Tariff Affairs and Trade Agreements of the United States International Trade Commission. This handy document is used to determine the applicable tariff for the item you're importing. And read it very, very carefully. Leather gloves attract one tariff, wool gloves another. And would that be lined or unlined gloves? Again, different tariffs apply. A T-shirt with a logo on it attracts a different tariff than one without, as does a shirt with a button on the breast pocket as opposed to one without. And that's without taking into account the vagaries of geography. Animal ear tags, for

example, attract especially punitive tariffs if they happen to come from New Zealand.

The challenge here is twofold. First, a company must be able to prove that it's paying the right duty or tariff on what it's importing while making sure it's not exceeding the annual quota laid down in the rules. (The United States currently plans to phase out import quotas by 2005, in favor of a system based wholly on tariffs. Of course, say observers, that could change.) Second, a company will try to minimize the tariff payable or (legally) circumvent quota restrictions. If leaving a button off a shirt or sewing one on moves it into another quota or tariff category, why not? Of course, this requires up-to-the-minute knowledge of both the categories and the quotas.

At the Plano, Texas, import office of retailer J.C. Penney, Customs and Trade Manager Sandra Fallgatter uses such a service from Fasturn, which maintains timely, product-by-product quota positions on a website to which Penney's and other companies subscribe. "A lot of the apparel sourcing we do is driven by quota fill rates. And quotas can fill up very rapidly at certain times of the year," Fallgatter says. Electronic updates, supplemented by the website, keep Penney's abreast of what's happening. The goal is to source from the highest quality, lowest-cost manufacturer in the country with the lowest tariff penalties and then the next cheapest, and so on. Make the wrong decision and you're spending twice as much on sheets as you could, and you're either passing that cost on to your customers or putting your margins on a helluva diet.

EXPORTING: BE CAREFUL WHO YOU TRADE WITH

On the export side, there are another thousand pages of dense text in the Code of Federal Regulation plus a further seven sets of regulations relating to the trade embargo rules for countries such as Cuba, Iran, Iraq and Libya. Then there are the so-called denied party lists, maintained by the U.S. State Department, the Treasury and the Commerce Department, that include names and aliases of people, countries and organizations with which trade is prohibited. As of June there were 7,747 of them, including 846 separate terrorists or terrorist organizations, with new additions coming out every three weeks or so.

Policing is carried out by the Office of Export Enforcement, an agency of the Bureau of Industry and Security within the Commerce Department. And no matter your intentions, running afoul of these agencies is all too easy. According to U.S. Treasury Department documents, Swedish retailer Ikea and Tyson Foods were companies recently fined for breaking the rules. Ikea got in trouble for buying rugs from an area of Afghanistan it thought was non-Taliban but which turned out to be Taliban controlled and therefore beyond the pale. In Tyson's case, a \$150,000 fine was levied because a Jordanian

company it had acquired shipped chicken parts to Iraq. In another well-known case, American Home Products was fined \$2.5 million when a minor, Colombia-based subsidiary was found to have dealt with blacklisted narcotics dealers.

Ship to one of these countries or parties, and senior executives can expect severe penalties, including jail, warns former Commissioner of the U.S. Customs Service George Weiss. And

obstinately indigestible elephant of global trade.

There's the matter of denied party compliance. Osama bin Laden probably has bigger priorities than sourcing his next shipment of chicken wings, but dealing in high-tech is a different matter. Companies in the electronics, aerospace and engineering industries must make sure that they're not shipping materials to people who shouldn't be receiving them.

UNTIL THE CUSTOMS MODERNIZATION ACT OF 1993, VESSELS ENTERING U.S.

that's just on the U.S. end. Other lists are maintained by other countries.

Fancy doing business with Action Knitting in Hong Kong? Better not. It's a front for Saddam Hussein.

THE SOFTWARE SOLUTIONS

While the solutions favored by J.C. Penney and PM Global Foods (see "Bills of Lading," this page) address the particular international trade problem that they are designed to ease, they don't amount to more than a bite or two from the

And it's not just a matter of shipping machine tools to Iraq, which even Joe on the loading dock might recognize as a dumb idea, but shipping them to, say, United Kingdom-based Falcon Systems—a designated alias of the Iraqi government.

And what about Harmonized Tariff Schedule codes on exports, the classifications that will be used by the destination country in order to levy tariffs, contained in those two weighty 4-inch volumes? Or gathering the information necessary to prove a claim for duty drawback? Slickly produced documentation is a start, but it's far from the whole story.

Bills of Lading

When you're shipping meat around the globe, you can't afford to let it sit on the dock

IT'S TAKEN MOST OF A LIFETIME working in exports for PM Global Foods Logistics Manager Mike Hampel to acquire his present familiarity with the intricacies of the international trading system. After joining the Atlanta-based meat packer in February 2001, it took Hampel less than a month to convince his new bosses to switch a traditional paper-based system to an improved documentation process operated by shipping company American President's Lines (APL). [See "(Not Sitting on a) Dock of the Bay," www.cio.com/printlinks.]

For PM Global Foods to invoice an export customer for a container-load of beef or pork, a bill of lading is required. This is drawn up by the shipping company, based on information supplied by the vendor in a document known as the "master bill of lading instruction." When complete, the

shipping company faxes a draft copy to PM Global Foods, and follows through by sending it the required number of original and nonnegotiable bills of lading—three original and six nonnegotiable in PM Global Foods' case. Finally, the company draws up an invoice, attaches the bill of lading, certificate of insurance and any other documents, and sends the package to the customer.

That was then. Now, thanks to a system called E-BL Print, developed and operated by APL, the bill of lading is drawn up electronically, checked online and printed out in Hampel's office along with the appropriate digital signatures. "It's all on the Web," he says. "What used to take between four and six days now takes two to three days. The day after the boat sails, we can have a bill of lading that we can get to

the customer and start the process of getting paid."

APL isn't alone in offering such a service, of course. FedEx has spent many millions developing its own version, explains Denise Wood, vice president of customer systems at the Memphis, Tenn.-based freight company. Some parts of it are freely available at the company's FedEx.com website, while other parts attract a charge, she says, explaining that it's essentially an extension of the familiar FedEx track-and-trace service many of us use to find out where our packages are. Trouble is, of course, while such shipper's services can be useful for small companies willing to tie themselves to one shipper, bigger companies must either similarly tie themselves to a single freight company, or deal with duplicate systems. —M.W.

At Montreal-based electronics distributor Future Electronics, which has offices in 35 countries, Vice President of IT Robert Lapointe selected a system from Dulles, Va.-based Vastera that aims to meet these needs. Installed in export hubs in Bolton, Mass., Singapore and London, and soon in Montreal, the system provides all of Future's export documentation, as well as carries out denied party compliance checking.

is driving companies to make a choice now, as they weigh the mounting costs and risks of noncompliance.

The Holy Grail of global trade, says Bittner, involves more than compliance and documentation; it also demands carrier management and shipment visibility. Consequently, of late there's been a spate of acquisitions and alliances as vendors attempt to acquire those capabilities. The DuPont implemen-

PORTS WERE OBLIGATED TO REPORT THE NUMBER OF CANNONS ON BOARD.

"We have multiple shipments crossing borders every day," notes Lapointe, pointing to heightened post-Sept. 11 security checks. "We can't afford to have them delayed, and the documentation needs to be perfect for them to get through without holdups."

While AMR Research of Boston calls Vastera the largest trade specialty vendor, and the one with the most comprehensive functionality, it is far from the only company in the emerging international trade logistics category. At the Alexandria, Va.-headquartered WorldWide Retail Exchange, CIO Don Norman last April oversaw the implementation of an international trade solution designed to bring its members (currently 61 of the world's largest retailers and suppliers) significant savings. Web-based, it provides buyers and sellers with standardized documentation and gives buyers true "landed cost" comparisons that include the effects of tariffs and quotas through a link to the international trade functionality of NextLinx.

Development has been driven directly by the member retailers themselves, explains Jim Schwab, product director of the Retail Exchange's worldwide trade logistics, with the United Kingdom's leading supermarket, Tesco, leading the way. With stores in the Czech Republic, Hungary, Malaysia, Poland, Thailand and the United Kingdom—and a global supplier base—it's a fair bet that if the system works for Tesco, it will work for most retailers, says Schwab.

"Two different suppliers of bed linen in a given Far Eastern country can have widely different tariffs levied on their products, with some attracting antidumping duties of 200 percent," says Stuart Blackery, a supply chain development project manager at Tesco, now assigned to the Retail Exchange's development team. "The buyer in the homeware department really needs to know that information, and the NextLinx data is six weeks ahead of hard copy in the U.K."

But no single product currently meets the full spectrum of international trade requirements, says Michael Bittner, former research director of supply chain strategies at AMR Research's West Coast office in Irvine, Calif. And while the potential lure of duty drawback and the like is attractive, it is often fear that

tation, for example, comes courtesy of G-Log's partnership with trade compliance vendor Xporta.

Meanwhile, CIOs impatient with the speed at which the software industry is catching up with their needs, must develop their own homegrown capabilities, often in partnership with small startups.

Global electronics contract manufacturer Solelectron of Milpitas, Calif., which assembles computers and other high-tech equipment for companies such as IBM, Lucent and Sony wanted a Web-based tool usable internally, as well as by suppliers and customers. With 5,000 shipments in motion at any one time, shipment management was clearly important. But so was documentation and compliance.

"When we bring on a new supplier in China, we need to ensure that they could produce the right documentation to ship to a plant in Brazil," says Jim Molzon, Solelectron vice president of global logistics. "We put a specification together and went to the marketplace and found there wasn't a single vendor that offered everything. The carrier management and visibility people weren't good at compliance and documentation, and vice versa."

So Solelectron made a deal with logistics software specialist Arzoon of San Mateo, Calif., leveraged by Arzoon's acquisition of a much smaller trade compliance vendor. Through a combination of integration and coding from scratch, says Molzon, Solelectron finally got its needs met.

The moral? IT and international trade are coming together faster than anyone would have believed possible a few years ago. Budgets are strained, but the penalties for failing to develop efficiencies in all trade areas are so large that they will put late adopting companies out of the game altogether.

The challenge of global trade is a nettle that must be grasped. But those duty drawback checks could ease the pain. **CIO**

If you have experiences—positive or negative—with IT's ability to enable international trade, share them with us at letters@cio.com. Freelance Writer Malcolm Wheatley used to operate an import/export business but left it for the more peaceful occupation of technology reporting.

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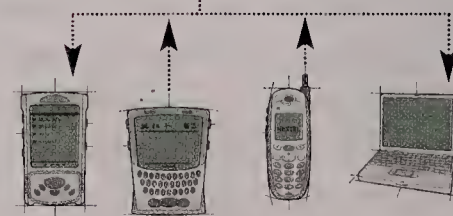
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KM PROBLEM

To facilitate knowledge sharing and collaboration among employees in support of a new corporate strategy to provide one face to customers

THE PLAYERS

KAREN FOLEY

Executive vice president of corporate development

BOB JAMES

Executive vice president of the technology and operations group

GORDON LARSON

Chief knowledge officer

CASE ANALYST

JERRY ASH

Founder and chief executive, the Association of Knowledgework

URL

www.kwork.org

Underwriting Knowledge

When insurance giant CNA had to consolidate and share what its employees knew, it turned to the Net—and knowledge networks

BY MEGAN SANTOSUS

FOR GORDON LARSON, telling stories is all in a day's work at his job as chief knowledge officer at CNA, and that's just fine with executives at the Chicago-based insurance giant.

Larson owes his job to a shift in corporate direction. Three years ago, under the direction of a new chairman, CNA set off on a new mission. The ultimate goal, says Karen Foley, CNA's executive vice president of corporate development, was "to get out of the distribution business and become a great underwriting company." And in order to do that, the company had to become more informed about the industries and customers it served.

But CNA's traditional structure of 35 separate strategic business units made sharing internal information among employees nearly impossible. A single customer seeking answers to different insurance needs might be passed along to a variety of departments.

CNA knew it had to create one uniform face to customers, and that meant it had to reeducate

its employees. Branch offices would have to be consolidated to facilitate closer working relationships among staff teams. Most important of all, CNA had to equip its employees—many of whom had focused solely on niche markets—with the much broader knowledge of all the company's products. To do that, CNA set about building a Web-based knowledge network that captures the expertise of its employees. And it's that expertise that Larson uses as the fodder for his "knowledge" stories.

A Strategy in Search of a Solution

In 1999, a team of CNA executives evaluated the feasibility of becoming a "great underwriting company," and what they found wasn't pretty. In North America, 175 branch offices supported CNA's 35 business units. In order to create a single face for customers, the executives decided to reorganize the company's business into three major areas: property casualty, life and group benefits, and reinsurance. By Decem-

ber 2001, the trio of new business units was established. CNA is still consolidating its field operations into 75 offices organized around five geographic regions, and that process is expected to be complete by early next year.

Along with the physical reorganization, the very nature of what employees did had to change as well. "Just by reorganizing, we wouldn't get people to change how they think and work with other people," Larson says. "Moving from a decentralized culture to a collaborative one is a major change-management challenge."

Each employee had to cede narrow product and market expertise to gain general knowledge of the company's entire product portfolio.

As the new "single face" of the company, each employee had to cede narrow product and market expertise to gain general knowledge of the company's entire product portfolio. In the past, a CNA small business customer that wanted additional coverage in the international arena would have to contact another underwriter and complete separate applications. With the new CNA, such customers would get all their needs met through one representative. "We needed to give the frontline underwriter the ability to appear like an expert for a variety of products," Larson says.

But how to make instant experts out of the staff? CNA's offerings include hundreds of products in more than 900 industry segments for both businesses and individuals, and in-depth knowledge was dispersed among 15,000 employees. The company had to figure out how to make the collective expertise of so many employees readily available to anyone, when and where it was needed. And it would have to do so in a way that didn't crimp individual work styles or create undue burdens on employees looking for information. Larson knew the company would have to "make it easy for any indi-

vidual to have access to people within CNA who had answers and information." Even if that staff was geographically dispersed. Then Larson hit upon the idea of an expert locator system, software that allows employees to post questions and give answers via the Internet or an intranet.

Working with consultants from Cap Gemini Ernst & Young, a team of CNA managers spent the end of 2000 evaluating numerous expert location software products. In late 2000, the team chose AskMe Enterprise software from AskMe Corp. of Seattle. Factors in AskMe's favor included software that

was scalable and capable of being integrated with Microsoft Outlook (already used by the company's employees), which meant a quick implementation. In February 2001, Bob James, CNA executive vice president of the technology and operations group, spearheaded a team of consultants from AskMe's professional services group to customize the software and create a small pilot project of 500 employees. The system, which CNA calls the knowledge network, has since been rolled out companywide and is being actively used by 4,000 employees.

Now if a CNA employee needs someone with underwriting experience in the inland marine industry, for example, he can type in a query and other employees are notified via e-mail that a question in their area of expertise has been posted. When employees answer questions, the software automatically adds to the archive, which eliminates the headache of answering the same question over and over again. Employees who have identified themselves as subject experts are known as knowledge sources. "Our knowledge network is a high-tech, geographically neutral watercooler that enables access to thousands of people," says James.

A New Role, A New Message

Larson, a 20-year veteran of the insurance industry and CNA employee since 1995, didn't officially join CNA's knowledge management effort until four months after the pilot launch of the expert locator system. Back then, Larson was working with Foley in the corporate development department on efforts to bring together CNA's various products and expertise in professional liability and standard property casualty. "It was hard to bring our internal expertise to our customers because each business unit had separate channels and distribution," Larson says. Given his prior experience in cross-marketing and in getting employees in different units to collaborate, he was very interested in taking a key role in CNA's new strategic direction. In June 2001, Foley formalized a leadership role around knowledge management, and Larson assumed the helm of a four-person team dedicated to promoting KM.

As Larson sees it, implementing KM represented a significant cultural change at CNA, where employees traditionally didn't collaborate with one another. For Foley, creating a KM department under the corporate development umbrella was a nod from management to the importance of knowledge sharing. "Our KM sits in corporate development for a specific reason," she says. "We chose not to put KM under technology because we don't want it viewed as a piece of technology. We chose not to put it in HR because it's not a training program. For us, KM involves brand development, research and employee communication."

Daniel Wright, AskMe's vice president of professional services, who consulted with James on implementing the knowledge network, says that CNA's establishment of a high-profile chief knowledge officer (CKO) role in conjunction with rolling out a KM system is part of an increasing trend. "Having a CKO not only shows commitment from the executive team, but it helps create accountability," he says. "Leaders within an organization have to drive adoption of knowledge-based networks in order for them to be effective."



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That's not to say that Larson has had it easy simply because he now wears an official CKO mantle. He is quick to admit that creating an environment receptive to knowledge sharing came at a particularly problematic time. When CNA announced its reorganization plans, the inevitable rumors of layoffs and restructuring that resulted sent nervous vibes throughout the company. "Getting traction for the knowledge network in the second half of last year was difficult," Larson concedes. "We were reorganizing the company into three major business units, there was a great amount of organizational turmoil, and employees were not sure of their roles or where they would fit in the new structure." However, now that the reorganization is complete, organizational roles have been clarified. "There's now a clear understanding of the importance of collaboration and knowledge sharing because the knowledge network is aligned with our corporate strategy," Larson says. For their part, employees are now clearer about their roles, responsibilities and accountabilities, and Larson has seen a groundswell of interest in the knowledge network as a result.

Telling Tales

Much of that interest in the knowledge network is attributable to Larson's message and the way he has chosen to deliver it. He has hammered home to employees and CNA's leadership alike the connection between presenting one face to the customer and shared knowledge. Larson has done that by telling stories about how sharing knowledge has helped employees on the job. He highlights individual success stories and publicizes them on CNA's intranet via a newsletter called Inside Scoop that's pushed to employees' desktops. As of April, Larson was in the process of recruiting so-called knowledge champions in about 20 functional areas throughout the company who will be responsible for collecting stories and passing them his way. "Storytelling is a helpful way for people to understand the role of the network," he says. "I highlight some of the ways using the network has helped us land

new business or avoid unnecessary costs."

The case of Donald Schwanke is a perfect example. A claims consultant in commercial insurance from Syracuse, N.Y., Schwanke received a claim from Canada in February 2001 that involved a lawsuit relating to alleged abuses that took place between 1953 and 1962. Included with the claim was a policy written through Conti-

mental Insurance, which had merged with CNA. Canada would not allow any statute of limitation defense—making this, potentially, CNA's responsibility. However, some of Schwanke's colleagues, former employees of Continental, recalled that all the Canadian policies had been sold following the merger. Schwanke needed to find out if the policy in question was among those sold

EXPERT ANALYSIS

ALL THE RIGHT STORIES

BY JERRY ASH

THIS CASE STUDY is, in itself, a wonderful example of the power of storytelling. Because it's the "right" story.

Knowledge management has been plagued in its infancy with all the wrong stories, often promoting an off-the-shelf tech solution—leading to disappointment and skepticism about the value of KM.

Not so at CNA.

A KM strategy is, foremost, a solution that should change the way we are organized and the way we work. The beauty of the CNA story is the prologue—a shift in direction that required a dramatic change in corporate structure, employee responsibilities and working relationships. That's exactly what needs to precede knowledge software solutions.

It is particularly significant that CNA created a CKO position and a KM staff to show executive commitment and establish accountability. Just as significant, the new office was placed in corporate development—not IT or HR.

There is a growing defeatist attitude among influential KM advocates that the knowledge movement should go underground because eyes glaze over or even harden when the elusive term *knowledge management* is heard. This tactic calls for stealth under assumed identity and behind the doors of other functions.

Not so at CNA.

The KM initiative is up front at CNA with the right label (KM) because it is a corporate strategy of change management to accumulate, create and share corporate and human knowledge across the board. Without that perspective, a KM project is at high risk of losing focus, momentum and identity.

Yet, KM is an up-down strategy—supported by the top but powered by individuals throughout the organization. People must be convinced of WIIFM (what's in it for me) as well as corporate objectives. CNA's KM Road Show is a perfect tactic to develop both the stories and a network of storytellers.

Be sure, though, that it's "truth telling." Disingenuous, fabricated or doctored stories that obviously serve the self-interests of the organization can do more harm than good.

The CNA story, however, is right on and worth telling again and again.



Jerry Ash is founder and chief executive of the Association of Knowledgework (www.kwork.org), a Web-based group composed of people from 90 countries who are engaged in KM. He can be reached at jash@kwork.org.

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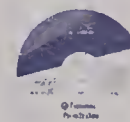
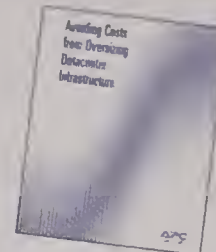
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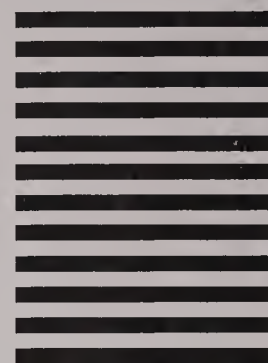
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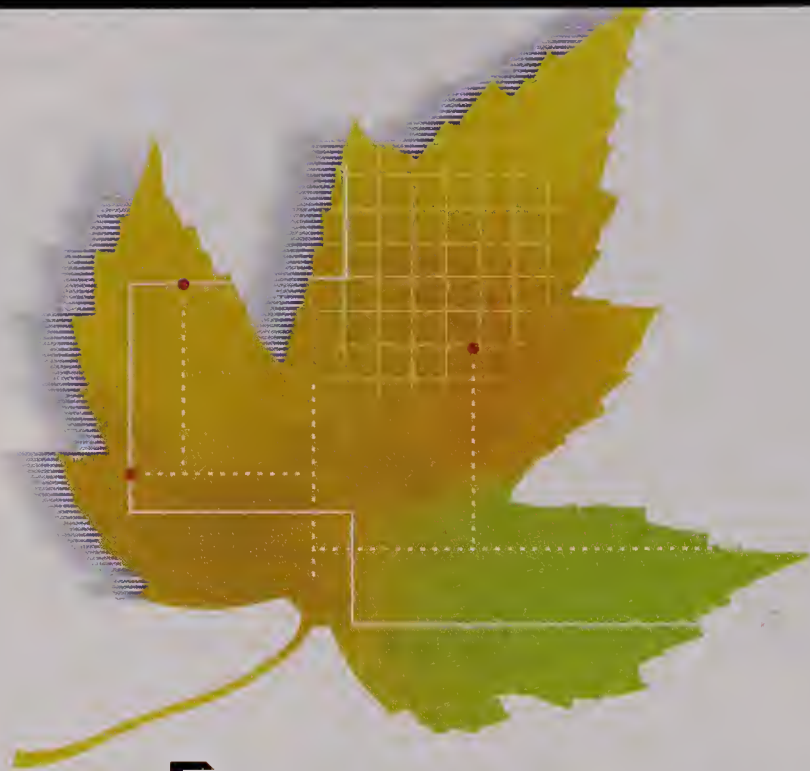
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and if so, which company had purchased it.

Schwanke turned to the CNA knowledge network, where he posted his question. His answer came the next day from an executive in a different business line who pointed Schwanke to a Canadian insurance company that had indeed purchased the policy. Schwanke was then able to notify the party who'd sent the claim of the correct insurer. According to Larson, the end result was Schwanke saving hours researching the issue—and CNA was spared settling a potentially very expensive claim.

The KM Road Show

Larson spent last winter and early spring reorganizing the categories on the knowledge network to better reflect CNA's new strategy and the roles of employees. For example, within the underwriting group, Larson is organizing content into casualty, property and specialty categories to capital-

ize on internal expertise. In the process, Larson is also recruiting new knowledge sources to populate the categories with information. To get out the word about the new knowledge network, Larson and his KM team took their message on the road this summer by visiting CNA's field offices and offering a hands-on introduction. In addition to gathering feedback from employees about the knowledge network and its relevancy to their job, Larson gathered more stories to share. To demonstrate the value of the knowledge network in the future, Larson wants to incorporate a more formal metrics process through regular employee surveys.

Despite high-level executive support for

the knowledge network in particular and knowledge management in general, Foley remains circumspect about KM's ability to completely transform CNA. "We're excited about the [KM] initiative, but we've come to understand that people and paper are still important," she says. James is a bit more enthusiastic. "The idea of using technology to connect people in a knowledge network is a very interesting one for corporations with a lot of intellectual talent geographically dispersed," he says. "Where it's difficult to get to know your colleagues, these networks can really help collaboration efforts."

For Larson, the end result is the power of collective knowledge. "With the network," he says, "we have the tremendous capability to deliver the expertise of thousands of people to our customers." 

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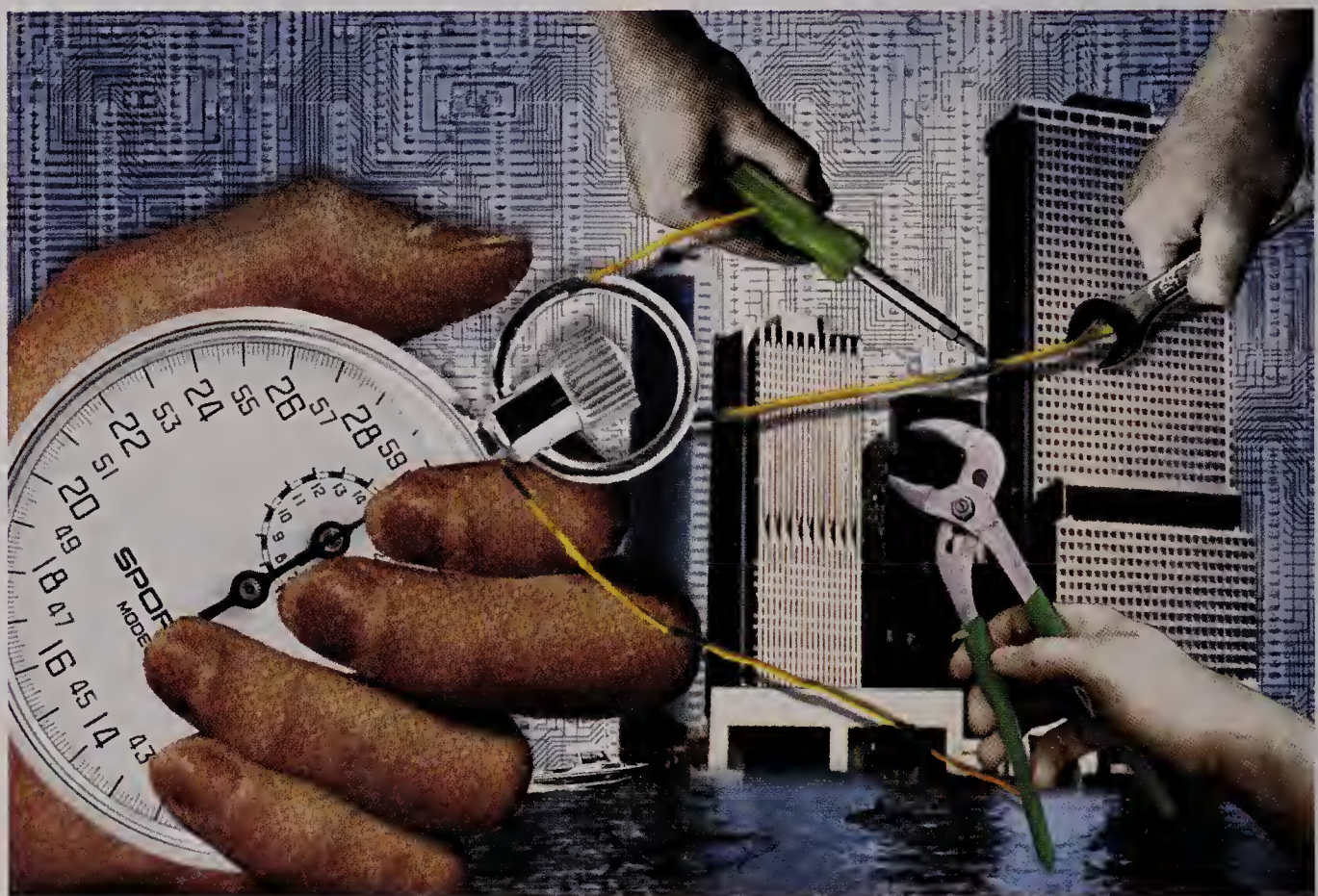
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How's It Going?

Performance management tools help systems run at peak efficiency

BY JOHN EDWARDS

WHEN AN ALARM GOES OFF, George Tumas doesn't panic. The senior vice president of Wells Fargo Bank's Internet Services Group faces potential catastrophe calmly, thanks to his investment in a performance management tool.

The latest such tools—also known as component and service-level agreement management tools—are designed to help IT departments keep a close eye on critical Web-enabled systems. As these systems grow larger and reach outside the

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enterprise to customers, partners and suppliers, the need to keep performance at the highest possible level becomes ever more pressing. That's not always easy, however. "The new Internet applications have multiple tiers—they're distributive and complex," says Dennis Gaughan, a software industry analyst at AMR Research, a technology research company in Boston. "There's just an increased demand for tools to measure performance and to make sure that the applications are performing to meet the requirements of the business."

Performance management technology has been around for decades, helping users

variety of other information reporting sources. The product continuously examines the relationship between the performance data and business concerns in real-time or over a period of time. Formula then customizes the information and delivers it to designated users.

Dirig Software, based in Nashua, N.H., features an agent-based technology that collects information without relying on underlying management software. The company's Dirig Agent offers real-time and historical monitoring capabilities of server functions, such as CPU, memory, disk-space utilization, log monitoring and

scope of monitoring. Ideally, these multiple paths to performance management should let CIOs select the best tool for their needs. But the wide-open marketplace can also lead to confusion. "You have to understand what are the important processes and services that you're delivering, and what needs monitoring," says Gaughan, "before you can apply the technology."

Tying It Together

Wells Fargo's Tumas, who oversees a number of departments within the Internet services development department, selected Mercury Interactives' Topaz technology to replace a variety of monitoring programs developed in-house. Topaz monitors four Web-based business lines that handle an array of consumer and commercial financial services as well as Wellsfargo.com. "The old tools simply weren't keeping pace with the rapid growth of Wells Fargo's IT and Internet services. They weren't scalable or Web-enabled," says Tumas. "You outgrow your tricycle to go to a bigger bike—that's what happened to us."

Tumas says he picked Topaz for its ability to provide holistic monitoring capabilities. "For a long time, we had individual alarms within each application, but nothing to tie everything together," he says. Topaz boosts staff productivity by pinpointing the root cause of performance problems anywhere within the Web infrastructure, such as on an Internet backbone. By doing so, the software lets staffers detect problems that might have gone unnoticed, such as unacceptably slow response times. "If you're not monitoring end to end, you may not even have an idea that you have a problem until your customers start flooding your call center," says Tumas.

Like many enterprises, Wells Fargo relies on a Web environment that's been built in piecemeal fashion over several years. Such

The newest performance management tools lift oversight from individual components and subsystems to a new holistic, business-focused level.

wring maximum value out of servers, storage, networks and other components. But the newest tools lift oversight from individual components and subsystems to a new holistic, business-focused level. Bill Gassman, a software analyst at Gartner, a Stamford, Conn.-based technology research company, offers an aviation metaphor: "It's the difference between knowing that your airplanes are flying at 550 mph, burning so much fuel, and knowing whether your flights are making it on time." In other words, the objective is to gain a bottom-line insight on system performance.

Multiple Paths

As the need for Web-based performance management practices grows, CIOs can pick from an array of products and services. McLean, Va.-based Managed Objects, for example, offers Formula—software that sits on top of the system and retrieves data from various underlying vendor management tools, such as Hewlett-Packard's OpenView and Tivoli Enterprise Console, as well as a

process monitoring (the observation of application executables). It also can take automatic corrective actions when systems exceed specified thresholds.

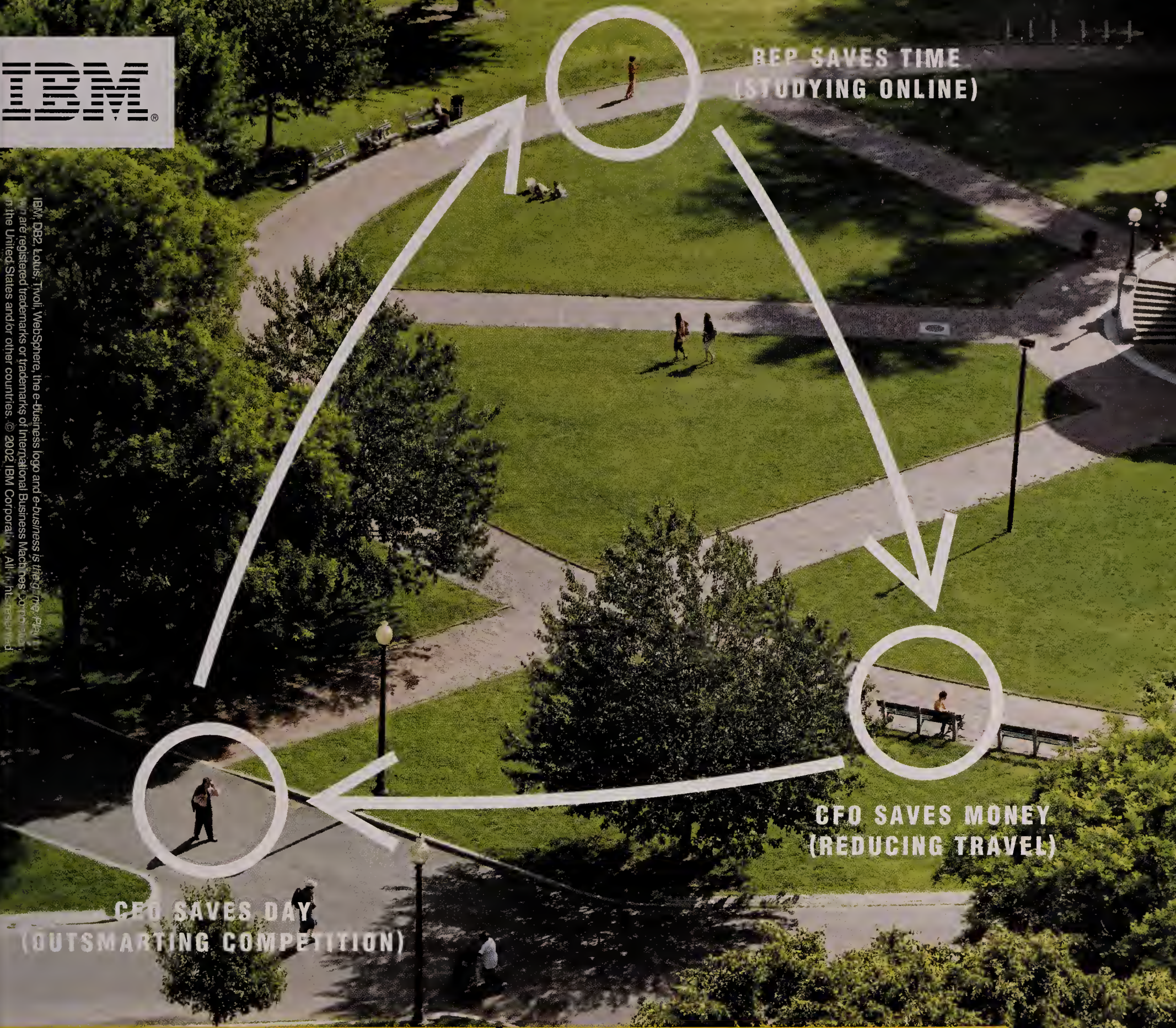
Mercury Interactive, located in Sunnyvale, Calif., also uses an agent-driven technology. The company's Topaz software can continuously monitor the availability of more than 40 aspects of the Web infrastructure, including the performance of servers, load balancers and the Internet backbone, from inside and outside the firewall. An ASP version of Mercury's software, ActiveWatch, is also available.

A variety of other startups, including San Jose, Calif.-based Euclid, Keynote Systems and NetReality, as well as old-line software providers such as BMC Software, Computer Associates, Hewlett-Packard and IBM, also offer various types of performance management tools. The products differ on the basis of price, scalability and component source monitoring features. Product prices can range from \$100,000 to \$500,000, depending on the size and

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an arrangement can make finding and fixing performance problems a complex and time-consuming task. The company's consumer Internet service, for example, runs on a mainframe connected to an assortment of firewalls, proxy servers, load balancers and middleware. Tumas says Topaz lets his staff cut to the heart of a problem, such as a last-mile communications bottleneck, before it has the chance to affect large numbers of customers. "Saving time is critical," he says. "That's the key benefit the software provides."

On the Edge

Just as performance management tools can help organizations cope with complex legacy systems, the products and services can also benefit organizations

software to monitor its Web system and some of its JVM applications. "The Dirig tool is able to alert us when one of those JVMs goes under," says Struve. "This proactively makes sure that our Web presence is up and available."

Evaluating ROI

Measuring a performance management tool's ROI is difficult. Unlike the previous generation performance monitors, which were developed to help enterprises tweak component performance, the new technology is primarily designed to boost one of the Web's great intangibles—end user satisfaction. But that doesn't mean performance management tools can't exert a positive effect on an enterprise's bottom line. A retailer, for example, may be able

The technology also offers the potential to trim IT personnel expenses.

that rely on cutting-edge Web technologies such as Web services. Performance management tools are a requirement for systems that use advanced Web technologies, says Jim Struve, assistant manager of information support services at WEA Trust, a Madison, Wisc.-based nonprofit organization that provides insurance and retirement services to Wisconsin public school employees.

WEA Trust has built its Web-based customer service system on Lotus Notes, Lotus Domino and IBM WebSphere products. A key element within the environment is Java Virtual Machine (JVM) technology, which Struve says is particularly difficult to monitor and troubleshoot. That's because JVM software often presents no overt trouble signs until a problem becomes critical. WEA Trust's Web system runs several JVM applications simultaneously. "A server could be running, and the other JVMs could be running, but one could be dead, and we wouldn't know it," he says. WEA Trust uses Dirig

to attribute increased sales to improved website performance or decreased downtime. Likewise, banks, newspapers and other service-oriented organizations could credit higher user retention rates to the positive effects of a performance management tool, although other technologies and business practices can also affect user satisfaction and system reliability levels.

The technology, by pinpointing and, in some cases, fixing problems, also offers the potential to trim IT personnel expenses. "It's possible to eliminate people hired to troubleshoot applications," says WEA Trust's Struve. (Though Struve notes that he hasn't cut any positions.)

Trouble Ahead

Considering the complexity of monitoring an entire Web-based application infrastructure and the various ways the task can be approached, it's not surprising that many CIOs have trouble implementing performance management tools.

Cool Product

Big Picture

WHILE NOT NECESSARILY a must-have for every corporation, multiscreen video display systems do have their place both for videoconferencing and more esoteric pursuits, such as information walls (think the trading floor of the Nasdaq stock exchange, large-scale network monitoring centers or the military).

To enable such video operations, Imtech offers the Activu control system, a software suite that can securely connect multiple display devices across a network or in the same room. The software can "mirror" the same video data across multiple displays—from desktop systems to enormous video walls, letting large numbers of users view and interact with identical information simultaneously. Unlike proprietary systems, the Activu software runs on standard servers over a company's existing network, reducing overall implementation costs.

Imtech already touts clients, such as American Airlines, Cigna, Goldman-Sachs, J.P. Morgan Chase, Lockheed Martin and others. The company says pricing begins at approximately \$200,000 for complete data wall implementations, including hardware and software.

For more information, visit www.activu.com.

—Christopher Lindquist



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"There's a fair amount of integration work that you need to do in order to tie together all of those different agents collecting event information," says AMR's Gaughan.

For Jeff Crawford, senior vice president for Internet operations at Boston-based Fidelity Investments' e-business unit, the problem was tracking too much system data too closely. The monitor was constantly sending alerts because one threshold or another was always being crossed, he says. It took Crawford's staff five months to configure Managed Objects' Formula software so that only major performance failures generated alarms. "The problem was simply access to too much data," he says. "It's like taking everything good out of your refrigerator and throwing it into a pot—it's not going to taste too good."

Training and its related costs represent yet another potential pitfall facing performance management technology adopters. As Crawford's experience proves, getting a performance management tool to work well requires both patience and practice. Given the technology's complex nature, WEA Trust's Struve feels that it's important to let staffers "kick the tires" in test mode before sending them off to training classes.

Despite the various implementation headaches, the long-term gains are more than worth the short-term pains, says Wells Fargo's Tumas. He notes that performance management technology is the price one has to pay for Web-based systems that are called on to perform an increasing array of sophisticated tasks, yet must also maintain continuous access and rock-solid reliability. The bottom line is end user satisfaction. "It's truly customer-centric to make sure that customers have the best experience they possibly can," he says. ■

John Edwards is a freelance writer based in Gilbert, Ariz. He can be reached at john@john-edwards.com.



UNDER DEVELOPMENT Display Technology

Painting a Rosy View

TODAY'S LIQUID CRYSTAL DISPLAYS (LCDS) must be sandwiched between two rigid sheets of glass. This expensive process produces inflexible, fragile and relatively small displays. And despite cost reductions and performance improvements, cathode ray tube (CRT) monitors remain less expensive for most applications. As a result, in most offices, the LCD monitor remains an executive status symbol.

IT managers are rightly wary of LCDs, having been burned by suppliers that couldn't deliver. Production problems often led to LCD shortages, forcing hardware vendors to miss shipments and raise prices. Most recently, Apple computer was forced to reorganize its product strategy, releasing its CRT-based eMac to consumers to compensate for the production shortfall of its LCD-based iMac.

A group of engineers at Philips Research Laboratories hopes to change that, with a fabrication process that allows them to "paint" liquid crystals on any substrate without the need to sandwich it. The resulting displays are less expensive, faster to produce, and can eventually be far larger and more flexible than current LCDs.

The technology poses some interesting possibilities. Interactive screens could replace classroom chalkboards, TVs and maps. Every corporate conference room could house a wall-sized display. PDAs, eBooks and cell phones, currently hampered by small, breakable screens, could finally realize their potential.

But don't throw away the overhead projector just yet. Seamus McAteer, principal analyst at the San Francisco-based ZelosGroup, has been following mobile LCD devices for years, and he sees a slow evolution. "Old technologies don't roll over, and LCD technology is continuously improving," he says. When asked if the next decade would bring about a display revolution, McAteer was less than bullish. "Ten years is a short time in display technology—we won't see any major fundamental changes like widespread use of highly flexible LCDs in that time frame," he says.

—Cormac Foster

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PUNDIT

9/11: One Year Later

Many Questions, Few Answers

Technology might keep us safe—but at what price?

BY CHRISTOPHER LINDQUIST

IT SEEMS STRANGE writing a column about how 9/11 changed our attitude toward technology. The events of that day obviously affected our views on a lot of important things: war, death, our nation's role in world politics. Technology hardly seems to deserve a mention among such solemn company.

But prior to 9/11, would any well-known corporate leader—even the notably vocal Oracle Chairman and CEO Larry Ellison—have come out for a national ID system? Would Rudolf Giuliani, the former mayor of the country's largest city do the same? And if they had, would their comments have been met with such muted criticism? The events of 9/11 made us receptive to incursions into our private lives that we wouldn't have accepted previously. And that fact is going to raise some dilemmas for CIOs going forward. (See "Staying Power," Page 56, for how 9/11 has affected CIO thinking on continuity strategy.)

Today, corporations can own the tools to positively identify every employee by fingerprint or retinal scan. Companies can monitor and control every phone call made, every website visited, every e-mail sent or received. They can enforce what software gets installed on corporate systems and what hours those systems can be used. In the near future, thanks to cell phones with embedded global positioning systems, companies will even be able to track an employee's every move. Such Big Brotherism is currently exorbitantly expensive to buy and maintain, but prices will drop and management will become easier. And then, in the interests of corporate self-protection, disaster recovery and—potentially—national defense, it's rea-



The events of 9/11 made us receptive to incursions into our private lives that we wouldn't have accepted previously.

—Christopher Lindquist

sonable to think that we will be tempted to take full advantage of these tools.

Perhaps we shouldn't be too surprised at our relative indifference to such potential intrusions. Technology has long been a hedge against the unknown, whether it was a trench filled with water surrounding a castle or a string of satellites ready to

destroy oncoming nuclear missiles.

Now we face different foes, and we're looking for a different kind of technological armor. Face recognition software that can pluck terrorists from a crowd. Foolproof identification systems. National security databases that keep known terrorists from acquiring the tools of their horrible trade.

And the vendors are more than happy to indulge our fear-driven desires. Within days—even hours—of when those first terrifying images appeared on our TV screens, the press releases started to appear. Morbidly, they touted the benefits of their companies' products and tried to persuade us that the recent events had only increased the need for those products. From backup software to firewalls to fingerprint scanners, nearly everyone got in on the act. And I don't see anything to indicate that the pressure will let up anytime soon.

The question for CIOs will be, Where do you draw the line? Will you promote the use of such tools? Agree to implement them without argument when they are requested? Raise objections to their use in the interest of employee privacy? It might be best to have your positions worked out now, because these scenarios are likely headed your way—if they haven't landed on your desk already.

Happily, not all the post-9/11 news is about building electronic walls. A study by the UCLA Internet Project (www.ccp.ucla.edu) found that the tragic events inspired an unprecedented change in how technology helps people communicate. According to the report, more than half of all e-mail users sent or received messages offering emotional support or asking questions about the attack. Not all the messages were directly related to the events in New York City, either; many people used the e-mails to repair damaged relationships—repairs that the senders said they never would have attempted with a telephone call.

But such positives are rarely mentioned. It's far easier to focus on the fear. **CIO**

Christopher Lindquist is CIO's technology editor. He can be reached at clindquist@cio.com.

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AGENDA

SUNDAY, OCTOBER 6

8:00 am – 1:30 pm
Golf Tournament

3:00 pm – 5:00 pm
Registration

6:00 pm – 8:00 pm
**Registration, Welcome Reception
& Golf Awards**

8:00 pm – 10:30 pm
**Evening @ The Improv, sponsored
by Information Builders**

MONDAY, OCTOBER 7 Building Internal Partnerships

7:00 am – 8:00 am
Breakfast

8:00 am – 8:15 am
Welcome
Jonathan Zittrain
Conference
Moderator and
Co-founder, The
Berkman Center for
Internet & Society,
Harvard Law School

Abbie Lundberg
Editor in Chief, CIO
Magazine



8:15 am – 9:15 am
**The CIO's Most Essential
Partnership**
Cecilia Claudio
Senior Vice President
& CIO, Farmers
Group



Having an enthusiastic, motivated
and flexible IT staff is crucial to
building relationships both inside

and outside the organization. In
order to ensure IT's alignment with
business strategies, the CIO must
have a solid partnership with the IT
staff. How do you give your staff
the confidence in themselves and
management that enables them to
then transform the business?

9:15 am – 10:30 am
**Business Ethics in Action:
A Real-Life Scenario Panel**
Jonathan Zittrain, Moderator
From the recent spate of account-
ing scandals, to the continuing
debate over the use and abuse of
customer information, ethics is a
hot topic. Who decides what's
ethical – and what is the CIO's role
and responsibility? What internal
partnerships does a CIO need to
forge to ensure ethical business
practices throughout the organiza-
tion? In this innovative session,
conference moderator Jonathan
Zittrain poses "what-if" scenarios
to a panel of key corporate players,
including a CIO, CEO, corporate
counsel and auditor.

10:30 am – 11:00 am
**Coffee Break and
Sponsor Displays**

11:00 am – 11:45 am
Sponsor Briefings

11:55 am – 12:40 pm
Sponsor Briefings

12:40 pm – 2:00 pm
Lunch

2:15 pm – 3:30 pm
**Best Practices for
Change Management**
**Martha Heller,
Moderator**
Director, CIO Best
Practice Exchange,
CIO Magazine



Effective change management
requires solid leadership, clear
communication, willing users and
executive buy-in. No wonder many
CIOs can't seem to get it right. This
panel of CIOs, drawn from the CIO
Best Practice Exchange, CIO
Magazine's private online network
of senior IT executives, offers
advice on the tricky topic of
implementing full-scale, technol-
ogy-enabled business process
change. It takes more than a few
good partners.

3:30 pm – 4:30 pm
**The CIO's Role in the
Executive Suite**
Dawn Lepore
Vice Chairman,
Technology, Opera-
tions & Administra-
tion, The Charles
Schwab Corporation



As information technology
increasingly drives all areas of the
business, CIOs are taking larger
roles as full members of the
executive team. The actions and
skills required to build effective
partnerships at this level add a
whole new dimension to the CIO's
job. What does it take to get there –
and to shine in the role?

4:30 pm – 5:15 pm
**CIO Peer-to-Peer
Connection Time**

6:00 pm – 7:30 pm
Networking Reception

TUESDAY, OCTOBER 8 Building External Partnerships

7:00 am – 8:00 am
**Breakfast & Informal
Discussion Roundtables**

8:00 am – 8:15 am
Welcome Back
Jonathan Zittrain

8:15 am – 9:00 am
**Private/Public Partnerships
for Protecting the
Nation's Infrastructure**

This special session is produced in
cooperation with the National
Critical Infrastructure Assurance
Office (CIAO) in the US Depart-
ment of Commerce.

9:00 am – 10:00 am
**Working Together: New Models
for the Vendor/Customer
Relationship**

A panel of CIOs and vendor
representatives talk about the new
types of relationships they are
developing, what it takes to
achieve them, and how each side is
working toward a win-win situa-
tion.

10:00 am – 10:45 am
**Key Factors for Business
Alliance Success**

It takes numerous factors to make
a successful business alliance –
and only a few to break it. Every

For up-to-the-minute agenda updates and to register for this event, visit www.cio.com/conferences or call 800-366-0246.

step is crucial, including articulating the shared vision and goals, agreeing upon systems design and implementation, and designating partner roles and responsibilities. How do you build a successful business alliance – and how do you keep it working? This case study explores one such partnership in depth.

10:45 am – 11:15 am

Coffee Break & Sponsor Displays

11:15 am – 12:55 pm

Sponsor Briefings

12:55 pm – 2:00 pm

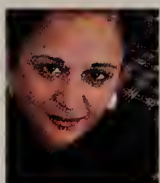
Lunch

2:00 pm – 3:30 pm

InFocus Workgroup Breakout 1: Collaboration & Knowledge Management in a Distributed Environment

Atefeh Riazi

CIO, Ogilvy & Mather Worldwide



How can we effectively share knowledge and lessons learned across cultures, languages, time zones and technology platforms? How do you get everyone to overcome “sharing anxiety” and eliminate the barriers to enterprise-wide collaboration? Riazi discusses organizational and technical issues surrounding collaboration and knowledge management in a global company.

2:00 pm – 3:30 pm

InFocus Workgroup Breakout 2: Smarter Spending: Optimizing Every IT Dollar

Greg McDonald

Director Finance, Enterprise IT, Ingersoll-Rand



Optimization of the IT investment focuses on determining the precise balance of cost, risk and return (value). McDonald contends that optimization is an art, because it is not exactly a science. While there are many factors, formulas, metrics and

methods with wide-ranging application, value determination is subjective, and value is the underlying premise of the investment. Optimization is more about risk than it is about money, and each organization has a unique cost-risk profile. How do you determine yours, and make the best investments accordingly?

2:00 pm – 3:30 pm

InFocus Workgroup Breakout 3: Outsourcing: Risk Management

Edward Hansen and

Akiba Stern

Partners, Shaw Pittman



In an environment where companies are seeking to trim costs and focus on core business competencies, outsourcing can be a sound strategy. But it can be a risky business. Outsourcing deals that are executed improperly can result in tremendous hardship and expense. Hansen and Stern provide case studies and systematic processes that speak directly to success for CIOs and senior executives who may be considering outsourcing IT or business processes, and show how outsourcing principles can work for you in other technology deals.

2:00 pm – 3:30 pm

InFocus Workgroup Breakout 4: Tactics & Skills for Contract Negotiation

Wayne Bennett

Partner, Bingham Dana LLP



This interactive session is devoted to the preparation and discussion of (1) a list of procedural and substantive pitfalls to avoid in IT contract negotiations and (2) a list of tactics and approaches that can help bring contract negotiations to a successful conclusion.

Attendees should be prepared to contribute problems they have encountered as well as approaches that have succeeded.

3:45 pm – 4:30 pm

The CIO's Role in Marketing to Customers

Regis McKenna

Chairman, The McKenna Group, and author of

“Total Access: Giving Customers What They Want in an Anytime, Anywhere World”



Forget the debate over whether marketing is an art or a science. It has become a technology, and today's CIO must also be the chief marketing architect, someone who builds connections with customers, distributors and retailers. The CIO is the one who can align all the diverse goals of the enterprise into one coherent structure that provides total access.

4:30 pm – 5:15 pm

A Special Partnership

5:15 pm – 5:30 pm

Closing Summary

Jonathan Zittrain

5:30 pm – 6:30 pm

Reception & Book Signing with Regis McKenna

7:30 pm – 9:30 pm

Dinner & CIO 20/20 Vision Award Winner Panel

Esther Dyson

Chairman, EDventure Holdings



Dyson reflects on the profound impact of information technology on the way we live and work today, then joins with the technology developers and implementers who are some of this year's CIO 20/20 Vision award winners to get their perspectives on what lies ahead.

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Hot Seat

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How to Mentor: The development statement

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By Susan H. Cramm

Show Them That You Care: Lead your staff by aligning values and actions

Reader Q&A: Long-term care pays off

How comfortable do you find the hot seat? E-mail Leadership and Management Editor Edward Prewitt at hotseat@cio.com.

Three Steps to a Technology Transformation

Fran Dramis helps BellSouth evolve into an information services company through mapping, building and leveraging IT

BY ALICE DRAGOON

Change is hard. Even when the benefits are obvious, it takes a lot of determination to get an organization to do things differently. But Fran Dramis is a determined sort of guy; he's developed a detailed blueprint for guiding corporations through the challenging process of technology transformation.

Dramis spearheaded major technology makeovers as a consultant to Bankers' Trust, Citibank, Coopers & Lybrand, NASD and Xerox, and in the process he served as acting CIO for divisions of all those companies but Xerox. Now he is entering the final phase of a so-called technology transformation at BellSouth in Atlanta. As executive vice president and chief information, e-commerce and security officer, he's helping the Baby Bell morph from what he calls a "transport company" optimized around voice circuit switching to an information services company that adds value to its voice and data transport business. (For example, customers might pay extra for prioritized routing or to have BellSouth store a backup copy of the information being transported.)

It's no small task, but Dramis knew what he was getting into when he accepted the job at BellSouth in December 1998. One big condition was that he had to report to the CEO. Having led technology transformations before, he knew that "if it's not center plate for the CEO, it takes twice the amount of time."

With the full backing of his boss, he launched into his tried-and-true change program. Dramis calls it a fairly straightforward gap-analysis process, which he

refined during six years working as a consultant, CIO (at AT&T Information Systems and Solomon Brothers), president (of a utility industry software services company) and CEO (of a network



Change agent par excellence: Fran Dramis, executive VP of BellSouth

integration company). The process has three phases:

1. Engage the business to develop a technology transformation road map.
2. Build the enabling technology necessary to get the company on equal footing with competitors.
3. Gain business leverage by moving toward the desired state of technology.

Phase 1: Create a Road Map

In this first phase, Dramis gives business unit presidents a series of questions about their technology, and makes them present

Hot Seat

their answers to the chairman and CEO and his staff at an all-day meeting. The questions range from the simple (How old is each system?) to those requiring more soul searching (How do the capabilities of your systems compare with those of your competitors?).

The questions are designed to help the executives assess their portfolio of systems and gauge whether they're sufficient just to stay in business. Dramis refers to a shortfall as the enablement gap. Closing an enablement gap doesn't produce a competitive advantage. It just gets you into the game and provides a base on which to build. "Many transformation efforts fail because businesses try to get a return on investment without closing the enablement gap," he says.

The purpose of the road map phase, Dramis says, is to engage business unit leaders in the process of technology transformation. He refers to this phase as "wallowing in the current state" and likens the meeting in which business execs own up to their technological inadequacies to a group therapy session. "Somebody comes up and says, My name is Bob, and I have lousy systems," Dramis says. "And we all say, Hi, Bob, and we go forward." The end goal of the road map phase is being able to describe the desired state of technology and developing a plan for getting there.

Phase 2: Make the Transition

In this stage, Dramis sets standards and, if necessary, centralizes IT operations. This is the point at which enabling technology is built. In BellSouth's case, closing the enablement gap meant putting in fairly extensive middleware to connect front-end e-commerce and Web-based systems to back-end systems. Companies also assess potential IT partners in the transition phase, deciding whether to outsource some base-level systems.

To ensure that a company's IT investments are in sync with the technology road map, Dramis uses the transition phase to institute processes that make it harder to spend money on undesirable systems. If managers want to buy systems that won't close the enablement gap, they need approval from Dramis and their business unit president; if they want to invest in systems that will help close the gap and can be built on, they can just go ahead and do it as long as they have the budget. By discouraging investments in systems that would not close the enablement gap at BellSouth, Dramis has been

downsizing. But he insists that job cuts are normal at the beginning of the leveraging phase; the corporate downsizing initiative just sped up the process somewhat. Still, BellSouth is already starting to see the payoff from the technology it has begun to leverage.

Thanks to Web interfaces developed during the transition stage, around 10 percent of customers signing up for BellSouth's DSL service do so online. A new ordering system, which facilitates online ordering and is used by call center reps who handle phone orders, has allowed the company to cut the cost per sub-

LEADING CHANGE

Fran Dramis's Tips on Managing Technology Transformations

- Push the organization's culture nearly to the point of disruption.
- Link the need for change to something that's meaningful to individuals.
- Assume that any sort of change will be difficult. Learn what will make people less uncomfortable with that change.

able to divert more than 50 percent of the money the company would've spent enhancing nonleverageable systems to what he calls directionally correct systems.

Phase 3: Leverage Technology

By the third stage, responsibility for technology shifts back to the business units. Now that the company has closed the enablement gap and has the necessary technologies in place, it can start building off that platform and really reaping the benefits of IT.

At BellSouth, the capital crunch affecting the entire telecom industry has forced the company to reduce its capital expenditures by more than 30 percent. Dramis is now in the process of restructuring his group as part of an overall corporate

scriber by more than 50 percent. The company tripled its DSL subscribers last year and plans to double them this year.

Dramis also notes that BellSouth was able to cut development time in half for the previous three major systems it implemented: the DSL ordering system, a sales-force automation system, and a GPS system that, in combination with a new dispatching system, will save BellSouth hundreds of millions a year.

Captain of the Change

Dramis's ability to lead an enormous company like BellSouth through such a transformation hinges largely on his skill as a change agent. He compares his role to that of an expert captain in a sailboat race. "If the leader of the race is going

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50 knots and your boat is only going 30 knots, you need to try to get more wind to the sail," he says. "A

good captain will get the sail right to the point of ripping. And that may only be 40 knots. But if someone says, I've got to get to 50 knots, and they rip the sail, the boat stops and they'll never win. A good change agent stretches the culture to the point of being disruptive but stops right before that."

Getting the boat up to 40 knots requires persuading a whole lot of people to change the way they do things. "In a technology transformation, I have to somehow convince the person working night tour computer operations to turn right instead of turning left," says Dramis. "You need the ability to articulate to people the need for change and link into something inside the individual which has meaning to them."

For example, as leader of BellSouth's Business Continuity and Security Council, Dramis needs to figure out what will get employees to buy in to new security practices. Some employees are motivated by pride of country, others by the need to secure their families, still others by the need to ensure the continuity of the business—their source of livelihood. "Whatever it is in the individual, a leader has to be able to go there, and have the person go there," says Dramis. "Even good change is difficult. Leaders have to find out what will get people to be OK with the uncomfortableness of change."

Linkage in Action

To make sure BellSouth's 200 senior technology leaders understand how their actions tie in to the company's technology transformation effort, Dramis calls them all together for monthly half-day conferences.

Dramis keeps his finger on the pulse of day-to-day operations and the progress of

MANAGEMENT BRIEFS

The Development Statement

Fran Dramis's Mentoring Process

Many businesspeople think of mentoring as a squishy time sink imported from the HR department that lacks defined objectives. But Fran Dramis, executive vice president and chief information, e-commerce and security officer of Atlanta-based BellSouth, has developed a simple and potentially powerful process for mentoring people. His method centers on a single paragraph. The outcome is a development plan that combines both business and personal concerns.

"What I basically do is ask people to write a paragraph on what will they be doing at the last day of their business life," Dramis says. The goal is to "make sure the paragraph describes the set of behaviors so worthwhile that the time spent between now and that [end] time is all worth it." Dramis then uses the written statement to work backward to the present, mapping out what the employee needs to do to make that end-of-career ideal a reality.

Dramis puts a particular emphasis on advising women and minorities, and he sometimes even reaches beyond BellSouth. (An Atlanta women's magazine recently recognized him for his efforts.) But Dramis uses the mentoring exercise for much more than altruistic purposes. He also applies it to his leadership team at BellSouth. "It enables me to have people completely engaged if they're on their life tracks," he notes.

Of course, it's possible an employee undertaking the mentoring exercise might realize she is in the wrong line of work. Dramis recounts the experience

of a programmer supervisor who once worked for him. Her goal for her last day of work was to make a presentation to a court of appeals. Dramis learned that the woman had originally wanted to be an attorney. The two worked out a plan: If she refreshed her programming skills, she could take a step back and become a contract programmer, which would free enough of her time so that she could work her way through law school. Ultimately she did become an attorney.



Dramis, who is nothing if not process-minded (see "Three Steps to a Technology Transformation," Page 105), developed this mentoring process over several years. He views it more as life coaching than business advice. "In life, the world takes over," he says. "You want to get back on track to what will get you to your endgame."

—Alice Dragoon and Edward Prewitt

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the technology transformation by meeting every Tuesday for an hour and a half with everyone who reports to him, as well as their

direct reports—a group of about 20. The only agenda at this meeting is for each participant to report on the two most important things his group is working on. Period.

“We use this as a place of intervention to ensure alignment,” Dramis says. “By holding the meeting religiously each week, we’re only ever one week out of alignment in any one area.” He then publishes the full list of priorities and makes random follow-up phone calls. People pay attention to the weekly list because they know they might hear from the boss.

“Somebody comes up and says, My name is Bob, and I have lousy systems. And we all say, Hi, Bob, and we go forward.”

—Fran Dramis, executive VP and chief information, e-commerce and security officer, BellSouth

His main purpose in calling, says Dramis, is not to quiz employees but to give them a chance to ask *him* questions and share their thoughts about the list of priorities.

Making these calls is part of a day’s work for Dramis because he believes so strongly in sharing his executive-level perspective of the business with the people in the operational trenches—and linking that to the need for change. **CIO**

Do you have a change process? Is a change process important? Let us know at hotseat@cio.com. Alice Dragoon is a senior editor for CIO.

Leadership Agenda BY SUSAN H. CRAMM

Show Them That You Care

Lead your staff by aligning values and actions



“They won’t care how much you know until they know how much you care,” holds the old adage. It’s simple, basic, even trite. Yet think back and name the leaders who have cared for you. I can guarantee that it’s a short list because most leaders don’t get it. Their mouths say they care (and I believe most really do), but their actions tell a different story. They don’t know how to care and consequently

appear to care only for themselves.

I see it every day. Many common leadership actions scream, “I care more about myself than I do about you—or the enterprise.” As you read these descriptions, see if any hit home.

TALKING TOO MUCH. You put your needs in front of others’. You self-promote, overuse the word *I* and rarely question. Because of your self-centered viewpoint, you are unable to play an enabling role by helping others find the right answers and gain credit for the results.

FORGETTING THAT PEOPLE HAVE DREAMS. You assume that people want to get promoted within the context of their current position. You begin development discussions with “This is what you need to do to get to the next level” rather than exploring how employees can build the skills they will need to mesh their long-term goals with the interests of the enterprise. Finding that sweet spot energizes employees.

REFUSING TO REPLACE POOR PERFORMERS. Everybody waits for you to do the right thing, but you fail to give honest feedback and spend entirely too much time trying to mitigate or work around the problems created by inadequate job performance. As a result, teams are not able to function without intervention, and strong performers have to make up for others’ weaknesses. Everybody is frustrated when the solution seems so obvious and close at hand.

PLAYING DEFENSE. You allow work to flow into the organization unfiltered. Rather than playing offense—by defining the work that will and will not get done, clarifying objectives and ensuring adequate staffing—you are reduced to acting defensively. You try to bolster performance by micromanaging employees and overcontrolling their work. Some of your managers don’t get the support they need and feel ignored and professionally at risk, while others get too much scrutiny and feel a lack of trust and respect. Everyone is working too hard for too little, in both results and recognition.

IGNORING THE FOREST FOR THE TREES. You focus on strategy at the expense of delivery. You overlook the need to interact with the front line of the organization in order to challenge your perceptions of reality and road-test your strategies. By staying in the corner office, you delegate the critical work of

Isn't it ironic that something so fast has the looks to stop traffic?



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the organization too quickly (before the work is really understood) and too far away (buried deep in your organization).

As a result, you become isolated and communicate to your staffers that what they do isn't all that important and that you are out of touch.

Jim Collins, in his book *Good to Great: Why Some Companies Make the Leap...and Others Don't*, describes the attributes of a great leader. After conducting his own empirical research, Collins concluded that great leaders have a "paradoxical blend of personal humility and professional will." Their personal humility is evinced in their willingness to learn from others, serve as a guiding hand and let the team receive credit. At the same time, these leaders demonstrate the professional will to make the hard decisions about people, confront the truth about what can and should be done, and dig down to the details when necessary.

Why do so few leaders fulfill Collins's ideal? Perhaps because they were never really cared for themselves. It's the "abused leaders abuse" syndrome. If you are an abuser and believe that people are just a means to your end, do everyone a favor and transition to an individual contributor role, like investment banking or consulting. If you are one of the good guys and the actions I described above made you a little squeamish, then it's time to break the cycle of abuse. Most managers find leadership assessments based on 360-degree feedback to be very helpful in identifying their problem areas and monitoring their progress. As you face the (sometimes) brutal truths and summon the courage to change, take heart in the fact that by serving others, you will also serve

yourself. As Collins found, leaders at superior companies "loved what they did, largely because they loved who they did it with."

Reader Q&A

Susan H. Cramm answers questions on "Show Them That You Care"

Q: A fundamental problem facing our society is that we seem to be economically structured in ways that virtually prevent caring in the workplace. When caring happens, it's a heroic behavior, even though it contributes to the long-term interests of an organization. What's really going to cause a change in this institutionalized behavior of not caring?

A: Jim Collins's research in *Good to Great* makes it clear that caring pays off and should not be a function of economics. Unfortunately, caring does not pay off (except in people's hearts) in the short term—the time frame defined by Wall Street's attention span and the average executive tenure. Looking toward the horizon, however, I am optimistic because we are getting older demographically and, I hope, wiser.

Q: I am not familiar with 360-degree leadership assessment but would like to submit to one. We have no budget, however. Any self-help suggestions?

A: Just by your willingness to undergo self-assessment, I am sure that you are a better leader than you think. If you want to challenge yourself with a 360, here's a low-cost alternative: Contact MJ International (www.corporatelibrary.org) and purchase its Leadership Practices Inventory materials. For less than \$200, you will have all the materials (including tabulation software) to conduct a good, high-level leadership assessment. Good luck!

Q: What are your suggestions for dealing with a manager who exhibits many of these qualities?

A: First and foremost, forget about changing your boss; work on yourself. Figure out what you need that you aren't getting from your manager and get it from somebody else (this can include yourself). For example, if your boss is a self-promoter and your team is not getting the recognition it deserves, enlist support from clients you serve. If you aren't having productive career conversations with your boss, don't wait for him to ask about your dreams; make sure he knows. If there is a poor performer in your group, don't be a martyr and silently suffer. If your boss doesn't have a strategy, offer to facilitate a strategy for the organization. If your tactics are being ignored, see if you can position yourself as the COO. If this all seems impossible, move on—and be very careful about selecting your next boss.

Q: What's the best way a company can evaluate how well it does in this area? An employee survey?

A: Start by ascertaining whether the senior leadership is truly interested in developing great leaders along the dimensions I've discussed. Conduct an employee survey only if leaders are truly interested in taking action over the long term. The survey will raise expectations, and a lack of follow-up would be a clear sign of "not caring." If you proceed with an employee survey, then move on to 360-degree leadership assessments. **CIO**

To ask Susan H. Cramm questions, go to www.cio.com/leadership/agenda.html. Cramm, a former CIO at Taco Bell and former CFO at the Chevys restaurant chain, is president of Valuedance, an executive coaching firm based in San Clemente, Calif. Her e-mail address is shcramm@aol.com.

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Career Counsel

Mark Polansky Offers Advice to Aspiring CIOs and IT Managers

On the Outside Looking In

Q: I am a contractor and trying to expand into specialized areas of consulting, but I am finding it hard to break out of the mold of contracting and agencies. How do you get yourself in a position to market yourself as a specialist in a field? And where do you start?

A: There are two issues here. First, the specialization factor is clearly a catch-22. It's nearly impossible to get an assignment requiring a particular type of technical or functional expertise without already possessing relevant knowledge and experience. And it's similarly difficult to get the appropriate experience since you can't get that type of assignment in the first place. The answer here is to be part of a team on which you have value to offer, and at the same time can acquire exposure to something new. This is an excellent rule of thumb for all consultants to ensure ongoing acquisition of additional skills and fresh experiences. Your second issue, the challenge of establishing and marketing yourself as an independent consultant, is probably best passed on by me. There are many books, publications and web-sites dealing with this subject, and several organizations of like-minded individuals where you can learn the ropes. Good luck.



STARTUP BLUES

Q: I am recently unemployed. I had a director position within my company for just less than one year and have an opportunity to interview for a CIO position at a startup company. Since this position will not provide any income until the company's funding request has been approved, I have decided I will continue to pursue full-time, director-level positions in the market. If I am selected for and accept the CIO position, should I pursue contract or full-time positions until the funding is granted? And what should I tell the prospective recruiter trying to sell me to an employer if I seek a contracting position?

A: None of the above! If you choose the high risk and reward opportunity of working at a startup company, with or without funding in place, you simply must give it your full and undivided focus and energy or you will surely fail. You should receive a significant equity stake in the venture in considera-

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LEADERSHIP AMBITIONS

Q: I have an engineering bachelor's degree, a computer science master's degree and a PhD. I have taught for three years and have been in the industry for the past eight years, with four different companies. I have worked as a consultant, a systems manager, scientist and architect. I have not done any real development work but have done a lot of project management and frequently help troubleshoot and fix problems. I have worked to develop IT strategy for a manufacturing environment and most recently in supply chain management. I have tried to get into positions of leadership (for example, director or above), but I have not been successful. What would get me there?

A: It's very challenging for me to give specific recommendations without knowing you as an individual or at least seeing a résumé, but a few things stand out in your scenario.

CIO.com Have a career question? Visit the career counselor at www.cio.com/forums/executive/counselor.html and pose your own questions.

First, what are you—a consultant, an analyst, an architect or a manager—and how are you projecting and selling yourself both

on paper and face-to-face? If your current title and responsibilities are nonmanagerial, then you are asking a CIO to take a leap of faith with you and to risk offending existing staff who would also like a chance to be bumped up the ladder. Second, most CIOs will have a tough time bringing onboard a new director who has never done hands-on work in the trenches. While project management does not dictate this experience, it's clear that a strong background as an individual contributor establishes technical credibility and makes one better able to direct the technical efforts of others. Third, my antennae go up on your career history of teaching for three years and then working at four jobs in eight years. How are you presenting and explaining this in interviews? And speaking of interviews, have you sought feedback on your skills in this crucial area, or on your communication skills generally? All things being equal, I recommend staying put, build some tenure and work your way up into management from within—assuming that's possible at your current employer. If not, seek out lateral oppor-

tunities at corporations with strong reputations for professional development of IT leadership and give it your very best effort.

REOPENING A DOOR

Q: I turned down a midmanagement IT position at a Fortune 5 company last year through a recruiting firm, and now I want to work for that company. Should I return to the same recruiter, go elsewhere or apply directly?

A: Your first try and very best bet should be to circle back to the recruiter who contacted you last year. The odds are pretty good that she is still doing business with your dream company and, if so, will be your best advocate and your surest way to connect to the company. Ask the recruiter the direct question of your likelihood of successfully opening the door, and you will probably get a direct answer. If not, or if you sense a bait and switch on this go-round, then politely withdraw from the relationship and contact the targeted company directly—through the jobs page on the company's website and by a letter personally addressed to the CIO. Last, the only reason to go to another recruiter is if you know for sure that Recruiter A from last year has been replaced by Recruiter B this year.

CAREER COACHES

Q: As a young CIO, I'm looking for additional help, and I am considering hiring a coach. What are the pros and cons of heading down this avenue, and do you have any suggestion as to where I should look?

A: I think that coaches can be a wonderful way of acquiring a third-party look at yourself, and a very productive and accelerated way to address personal weaknesses and develop your individual strengths. Coaching resources and referral sources include the International Coach Federation (www.coachfederation.org), Coach University Coach Referral Service (www.coachreferral.com) and The Coaches Training Institute Coaching Referral Service (www.thecoaches.com). Additionally, you might consider engaging a retired or per diem CIO as a mentor on a consulting basis to coach you professionally through the white waters of your new position. **CIO**

Mark Polansky is a managing director and member of the advanced technology practice of Korn/Ferry International in New York City. He also is the chairman of the Greater New York Chapter of the Society for Information Management. The Web-based Executive Career Counselor column is edited by Online Research Manager Kathleen Kotwica (kkotwica@cio.com).



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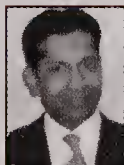
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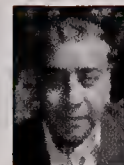
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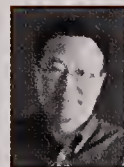
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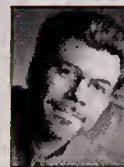
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Summaries

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COVER STORY |

Wall Street's 9/11 Comeback

By Sarah D. Scalet | 56

Three financial multinationals caught in the swath of the World Trade Center destruction one year ago—American Express, Lehman Brothers and Merrill Lynch—represent the comeback of Wall Street. Two of the companies returned to Lower Manhattan, and the other relocated to midtown. All three share a new respect for business continuity, vendor relationships, real estate strategy and what it means to be a leader. Investment banker Lehman Brothers bought a 32-story, block-long building near Times Square. CIO Jonathan Beyman sees it as a greenfield, where he can install more real-time backups, and ensure that all the direct phone lines to customers don't terminate in one place, as they did at the former headquarters in the World Financial Center. American Express moved people back to its Lower Manhattan building, but the IT assets, other than phone lines and networked PCs, are being distributed geographically—as is the IT staff, including one-third who are being transferred to outsourcer IBM. Merrill Lynch also returned to Wall Street and replaced all of its computer hardware, which was damaged by heat and smoke. Based on their proven value during last year's crisis, voice over IP and wireless systems are now keys to Merrill's business continuity strategy.

Before 9/11, Lehman had considered ditching its Jersey City, N.J., building. "If we'd gone down that path, we'd probably be out of business."

—JONATHAN BEYMAN, LEHMAN CIO

Spending for the Recovery

By Todd Datz | 66

DESPITE THE LINGERING ECONOMIC DOLDRUMS, investing wisely in technology *now* can help companies take advantage of the buyer's market—while it lasts. A CIO Research survey shows that nearly 60 percent of technology executives see IT spending picking up either this year or by the first half of 2003. MFS Investment Management, for example, sees the recession as a chance to leapfrog the competition. "We're hunters, not farmers," says CIO Peter Noll. In the survey, companies said any accelerated IT spending will target the following areas: infrastructure upgrades such as servers, CRM technologies, desktop upgrades and replacements, security, legacy system migration, e-commerce and software upgrades.

Web Services Challenges

By Ben Worthen | 72

WEB SERVICES IS INTERNET or other IP-based network applications built with four emerging standards, including XML, which allow the applications to talk to each other without human intervention. Early adopters are seeing the promise with small-scale implementations. But deployment remains a challenge. The Internet is a poor platform for today's version of the technology. Also, there are no industry-accepted open security standards for XML. Early adopters are configuring workarounds. Some companies are setting up VPNs to essentially bring the user behind the company's firewall. Health services company CareTouch set up a VPN to run a Web service that lets patients schedule an appointment with physical therapists. The dedicated connection uses middleware to guarantee delivery.

Global Trade Efficiencies

By Malcolm Wheatley | 78

FOR GLOBAL TRADE, THIS IS THE WORST OF TIMES. International terrorism has made governments acutely protective of their borders. And when governments get protective, rules proliferate. Traders are paying too much or not claiming duty refunds they are entitled to because it's too complicated to prove that entitlement. But it's also the best of times as a clutch of software companies are trying to make trading with Mongolia as straightforward as trading with Missouri. Companies such as DuPont, Future Electronics and J.C. Penney are using these products or building their own applications to prove entitlement to millions of dollars in duty refunds, to dynamically scout sourcing countries with the lowest tariffs, and to ensure compliance with U.S. regulations.

Case Files: Knowledge Management at CNA

By Megan Santosus | 85

INSURANCE GIANT CNA NEEDED to present one uniform face to customers, even with 175 branch offices and 35 separate business units. Executives reorganized the company into three major areas and decided each employee had to move from narrow product expertise to knowledge of CNA's entire product portfolio. The company turned to an expert locator system. Now if a CNA employee needs someone with underwriting experience in another industry, he can type a query into the knowledge network to notify other employees via e-mail. When employees answer questions, the software automatically creates an archive that eliminates the need to answer the same question again. To keep the momentum going, CNA created a chief knowledge officer position and KM department under the wing of corporate development.

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